CRANFIELD UNIVERSITY

ASMA ABDULLAH HASSAN

FRAMEWORK TO ASSESS THE LEVEL OF READINESS FOR TQM IMPLEMENTATION IN GIRLS' SECONDARY SCHOOLS IN SAUDI ARABIA

THE SCHOOL OF AEROSPACE, TRANSPORT AND MANUFACTURING

PhD
Academic Year: 2012-2016

Supervisor: Dr Ip-Shing Fan
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This thesis is submitted in partial fulfilment of the requirements for the degree of PhD

ABSTRACT

The Kingdom of Saudi Arabia (SA) set out its Vision 2030 of itself as a **significant Knowledge Economy** to position itself competitively in the world and in the Gulf region. The Government charged the education sector to prepare young people and build the creativity, innovation and technical skills for the country's future. The Ministry of Education (MOE) selected TQM and has made strategic investments to achieve this strategic transformation in education.

Despite this substantial investment in the infrastructure, teaching skills, information technology and advancement programmes for women to enter the workplace, the implementation of TQM has not so far delivered the outcomes expected in secondary schools (Bank, 2008; Chapman and Miric, 2009; TIMSS, 2011).

This research proposes that a programme that primarily focuses on the hard aspects of change, without participatory leadership and without integrating the people concerned (as a soft programme would), cannot achieve sustainable transformation.

An empirical study was designed to investigate staff perception of TQM implementation in girls' secondary schools in the Kingdom. The 525 respondents from 61 schools in five districts of Riyadh suggest that the most pivotal critical success factors (CSFs) limiting the development of TQM culture were Top Management Commitment; Training; Tools and Techniques; and Reward and Recognition.

The perception results were then used as the baseline to design a model that integrates the hard and soft CSFs of TQM in five stages of maturity. This assessment model could be used to support the schools and the MOE in objectively assessing the readiness of schools to implement TQM and identify the next major obstacles to reaching the next stage. The design approach of a maturity model is innovative in using context perception data as the baseline for designing the stages of maturity and the success factors the progress of change, making its use appropriate for the girls' schools in the Kingdom of Saudi Arabia.

Keywords:

CSF, Obstacles, Maturity, Influencing Variables, Culture, Capability, Continuous Improvement.

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BIOGRAPHY

Asma Abdallah is a PhD Researcher at Cranfield University undertaking research to develop a framework to assess the level of readiness in girls' secondary schools in Saudi Arabia to implement TQM implementation. Asma was awarded two Masters' degrees. The first, in Textile and Clothing, was completed in 2007 at the Princess Noura bint Abdulrahman University in Riyadh. The second, in Strategic Quality Management was completed in 2010 at the University of Portsmouth in the UK.

Asma was a lecturer in Princess Nora bint Abdulrahman University for three years and is presently employed as a Teacher in a girls' secondary school in Riyadh.

LIST OF PUBLICATIONS

- Hassan, A., Ip-Shing, Fan. and Johnstone, A. (2013) "Comparison Between TQM CSFS in Service Sector and Education Sector", in 6th International Conference of Education, Research and Innovation. Seville: IATED, pp. 5906–5915.

- Hassan, A., Fan, I. S. and Johnstone, A. (2014) "Level of Awareness and Understanding of the Meaning of TQM in Girls' Public Schools in Saudi Arabia", in 6th International Conference on Education and New Learning Technologies. Barcelona: IATED, pp. 7223–7232.

- Hassan, A., Ip-Shing, Fan. (2016). "Obstacles Hindering TQM Implementation in Secondary Schools in Saudi Arabia", in International Conference on Education and New Developments (END). Slovenia: Science Press.

- Hassan, A., Ip-Shing, Fan. (2016). "Towards a Model of Essential Factors for TQM Implementation in the Education Sector" (Submitted)

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LIST OF ABBREVIATIONS

Abbreviations	Means
SA	Saudi Arabia
MOE	Ministry of Education
TIMSS	Trends in International Mathematics and Science Study
PIRLS	Progress in International Reading Literacy Study
QA	Quality Assurance
QC	Quality Control
TQM	Total Quality Management
PDCA	Plan-Do-Check-Act
CSFs	Critical Success Factors
CPD	Continuous Professional Development
NCAAA	National Commission for Academic Accreditation and Assessment
(P-CMM)	People Capability Maturity Model
CMAF	CSFs Maturity Assessment Framework

1 Introduction

In the past few years, Arab countries in the Gulf Cooperation Council (GCC) region have recognised that a good education system is the bedrock of their economic progress if they are to overcome their present reliance on expatriate labour and a working population that lacks the skill or motivation to work (Maroun *et al.*, 2008).

The fact that younger people form a majority in the Arab world, especially in Saudi Arabia, where two-thirds of the population is under 30 (Al-Sadaawi, 2010), makes it an urgent matter to ensure that the next generation of young people is composed of the skilled, knowledge-based nationals who are needed to achieve the country's socioeconomic goals (Maroun et al., 2008).

The Kingdom of Saudi Arabia is an Islamic, gender-segregated society which is ruled by a monarch. Vision 2030 sets out the aspirations for the creation of a knowledge-based economy and the development of human capital as the means to transform its economy (Saudi Arabia's Vision 2030, 2016). Education has been determined as the cornerstone of this transformation. The Ministry of Education (MOE) has been tasked to prepare and develop the potential of both men and women by providing them with the creative, innovative and technical skills needed to address the country's low economic growth rate (0-2% per year) and high levels of unemployment and to position the Kingdom as a globally competitive regional leader in the Gulf (Baki, 2004).

However, the present education system is not meeting the needs of Saudi industries (see Appendix A for an overview of the education system and need for change); out of a population of 16 million, 7 million workers are foreign (Baki, 2004). This has become an urgent issue, so the government has introduced the strategy of "Saudisation" to ensure that the next generation of young people is ready to replace foreign labour (Maroun *et al.*, 2008).

The success of Vision 2030 and Saudisation relies on the reforms instigated in higher and secondary education; these are centrally managed and controlled by the MOE. The education system in Saudi Arabia is one of the major recipients of the recent strategic initiatives introduced by the state to ensure that skilled human resources be ready to

continue the country's economic and social development. Ultimately all students fulfil a role in society, whether they progress to higher education or not; this makes the secondary schools among the most significant agents for preparing the future society.

The objectives of the Kingdom's development plans include an improved role for women in Saudi Arabia. The government has taken a great many steps to improve access to education for girls' schools and to try to equalize the gender balance at all levels of education. Various improvements in social development have resulted from women's being more highly educated. These include lower fertility and mortality rates, better health and nutrition and a higher number of women in the work force.

The Saudi government has instituted a series of initiatives for enhancing women's access to higher education, including the establishment of the Princess Noura bint Abdul Rahman University, which is intended to be the world's largest centre of female higher education. In return, Saudi women have impressed international observers by becoming pioneers in a variety of fields, most prominently science and research and by earning international awards and patents (MoHE, 2010).

Nonetheless, there is still a gap between the skills in the public education curricula for girls' schools and the actual skills in demand. Nowadays one of the most important challenges facing the Saudi government continues to be the reformation of the education system for girls' schools.

According to the National Report on Educational Development in the Kingdom of Saudi Arabia (MOE, MOH and Vocational, 2008), a programme of strategically incremental change is required alongside systemic and transformational projects for introducing change across the entire education system; this can be achieved by adopting TQM. According to Zabadi (2013) and Alnahdi (2014), if educational institutions adopted TQM, it would allow them to remain competitive, would eradicate inefficiency in schools, help them to focus on market needs, reach high standards of performance in all areas and fulfil the requirements of all stakeholders.

The Ministry requested in a series of policy circulars and letters since 2009, that 83 directorates should implement TQM. However, according to Alruwaili (2012), it did not

provide any meaningful explanation or rationale for the shift to TQM. The Ministry conference in 2011, attended by 1382 delegates from these directorates, included all the senior decision makers, deputies, senior managers of educational quality, planning and development and head teachers of schools. The conference introduced the key motivators, which appeared to focus only on the dynamics of technology and consequence of the globalisation. As a result, the following were some of the key factors considered that needed investment as part of the TQM programme.

- To align teaching, management and leadership processes with more current and advanced methods associated with technology related approaches worldwide.
- To lay greater emphasis on quality and technology, to reduce cost and improve the effectiveness of the system.
- To let technology and information systems overcome ineffective or inefficient management related issues, introduce consistency across the system and thereby improve quality.
- To use information systems to produce an information database for the education system which provides consistent and regular data. Furthermore, data can be used to develop information trends that can overcome management guesswork and reliance on gut feelings.
- To align teaching skills, teaching methods and curricula away from the present traditional methods to more modern advanced and innovative methods that encourage critical thinking, research and flexibility and make careers available for those with degree based qualifications in teaching.
- To improve the schools' environment, remedy the shortage of schools with modern infrastructure and provide more schools with larger classrooms.

As a result Saudi has had to instigate many initiatives as part of the TQM programmes to prepare and refit the E-infrastructure of schools that could not yet accommodate the use of technology, design a comprehensive integrated modern curriculum reform which adopts "constructivist learning theory" and is adapted to creating an information system as the basis for modern education.

In addition a "modernised" flexible learning curriculum was introduced in schools in 2004; it is akin to the system used in the universities. This aims to increase student choice

and to build live practical skills in a system where the teacher is more coach and facilitator than instructor (MOE, MOH and Vocational, 2008).

A schools building programme set out to alleviate the pressure in the classrooms and introduce new technology to promote a more conducive classroom environment and encourage interactive learning (MOE, MOH and Vocational, 2008). Furthermore SR11.8 billion (US$3.1 billion) has also been invested in a recent public education scheme, the King Abdullah Project, which implement four programmes over the next five years to improve the quality of education (SUSRIS, 2016). Initiated in 2007 this is considered a landmark 'Tatweer' (reform) project and targets 900 schools in Saudi Arabia with the aim of rehabilitating teachers, regenerating the curriculum, building new schools and introducing technology (Meemar, 2014).

These are the biggest reforms in the Saudi education system yet and have so far impacted on over five million students and 786 high schools across the country. Further multi-threaded investment initiatives have improved the teaching skills of education leaders and teachers (SR2.943 billion (US$784.8 million) (SUSRIS, 2016)).

However, despite these substantial investments, educators remain alarmed at the lack of apparent progress. Some of the reasons cited for failure are highlighted by Almannie (2015). The argument is that some of the new curriculum developments are not altogether new because they were developed by the same people who had been responsible for the traditional education system. Furthermore, the teachers surveyed, who had been the recipients of investment in new skills, argued that crowded classrooms and the work pressure due to the introduction of the new curriculum prevented these skills from being put into practice.

This apparent lack of success has exposed a false assumption: that investment in resources and policy commitment alone can expect to produce adequate returns. There is no clear allocation of responsibility and accountability for attaining the Ministry's goals anywhere in the entire educational system. Teachers cited as further difficulties the lack of educational aids, a lack of clear standards and the existence of outcomes that cannot be measured. Teachers claim that they are inadequately prepared due to a shortage of training programmes and lack of incentives (Alnahdi, 2014) (Al-Sadaawi, 2010).

Furthermore, significant evidence is cited of the continued poor student performance shown in the recent Saudi ranking in the PIRLS, TIMSS international assessments (TIMSS, 2011).

In 2016 Muhammad bin Salman, Saudi Arabia's Deputy Crown Prince, reaffirmed the continued commitment to the National Development Programme in a landmark long-term blueprint which aims to safeguard the post-oil future for the Kingdom (Saudi Arabia's Vision 2030, 2016). Although the Saudi budget has shrunk, education retains a significant proportion of funding. Nevertheless there has been a clear transformation of aspiration into tangible measurable objectives across all government ministries, including the Ministry of Education, where high unemployment and an increasing proportion of young people remain the primary focus (Britton and Officer, 2016).

This study focuses only in the challenges facing the Saudi government in the reform of girls' secondary education by the implementation of TQM concepts. The aim is to assist the Ministry and the schools to implement their TQM related programmes by offering a framework to assess the level of readiness in the girls' secondary schools in Saudi Arabia to implement TQM.

The following paragraphs present the problem statement, the aim and objectives of the present research and an assessment of its contribution to knowledge and methodology.

1.1 Statement of the Problem

The Kingdom of Saudi Arabia is making extensive efforts to raise the quality of education in the country by giving it, like other sectors, a large budget (Alruwaili, 2013) and investing in many programmes including TQM. Although the country has introduced standards of TQM in Saudi's education sector, not many schools are following all the guidelines for implementing an appropriate system of management.

A number of professionals (Bank, 2008; Chapman and Miric, 2009) and benchmarks, (**TIMSS**), have demonstrated that the outcomes so far are not as good as officials had hoped.

Exploring possible models and frameworks for the application of management tools such as TQM may contribute to the desired improvements. This research therefore aims to identify the critical success factors, obstacles and influencing variables that affect TQM implementation and develop a framework for assessing the level of readiness for TQM implementation. This can also be used as a tool to support the continuous improvement in TQM implementation in Saudi girls' secondary schools.

1.2 Aim and Objectives

The primary aim of the research is to provide a framework to assess the level of readiness of TQM implementation in girls' secondary schools in Saudi Arabia's education system.

The objectives of the research can be outlined as follows:

1- To identify the obstacles and CSF of TQM implementations in education and develop an initial TQM CSF framework
2- To determine perception of TQM implementation and the CSFs and barriers in girls' secondary schools in Riyadh
3- To model the factors influencing the perception of TQM Implementation
4- T develop and test a maturity model to assess the level of readiness to implement TQM.

1.3 Contribution to Knowledge

- This empirical research provides a significant contribution to the knowledge and practice of TQM implementation, for practitioners and related workers, with a conceptual framework that recognises and accommodates the implications of the local cultural context in the desired integration of hard and soft critical success factors;
- The (CMAF) model fills the gap in published research in TQM Change Management between the TQM concepts and theories, by its practical staged approach to improving operational capability and readiness for TQM implementation, especially in education, but also applicable to other industrial sectors. It also lays a foundation for further research.

- The research identifies that the major obstacles in TQM Implementation can be addressed by recognising the interdependency with CSFs in the approach to implementing change.
- This provides a useful body of knowledge for educators, academics, practitioners and researchers in TQM education in Saudi Arabia that provides stakeholders with a clear road map in a systemised graduated evidence-based approach to developing and benchmarking TQM workforce capabilities and embedding new ones. The Ministry of Education has confirmed that the CMAF framework approach is a practical set of tools to assess the level of readiness to implement TQM.

1.4 Research Design

The research creates an instrument with criteria and measures to help the headteachers and teachers at Saudi girls' secondary schools to assess the progress of their TQM implementation.

The research adopts a phased approach. The product of each phase provides the input for the next phase and builds the foundation of knowledge and information needed to fulfil the end objective. The initial framework developed in the preliminary study is then tested in the main study to develop the final framework. The figure below presents an overview of the research design which is then described in more detail.

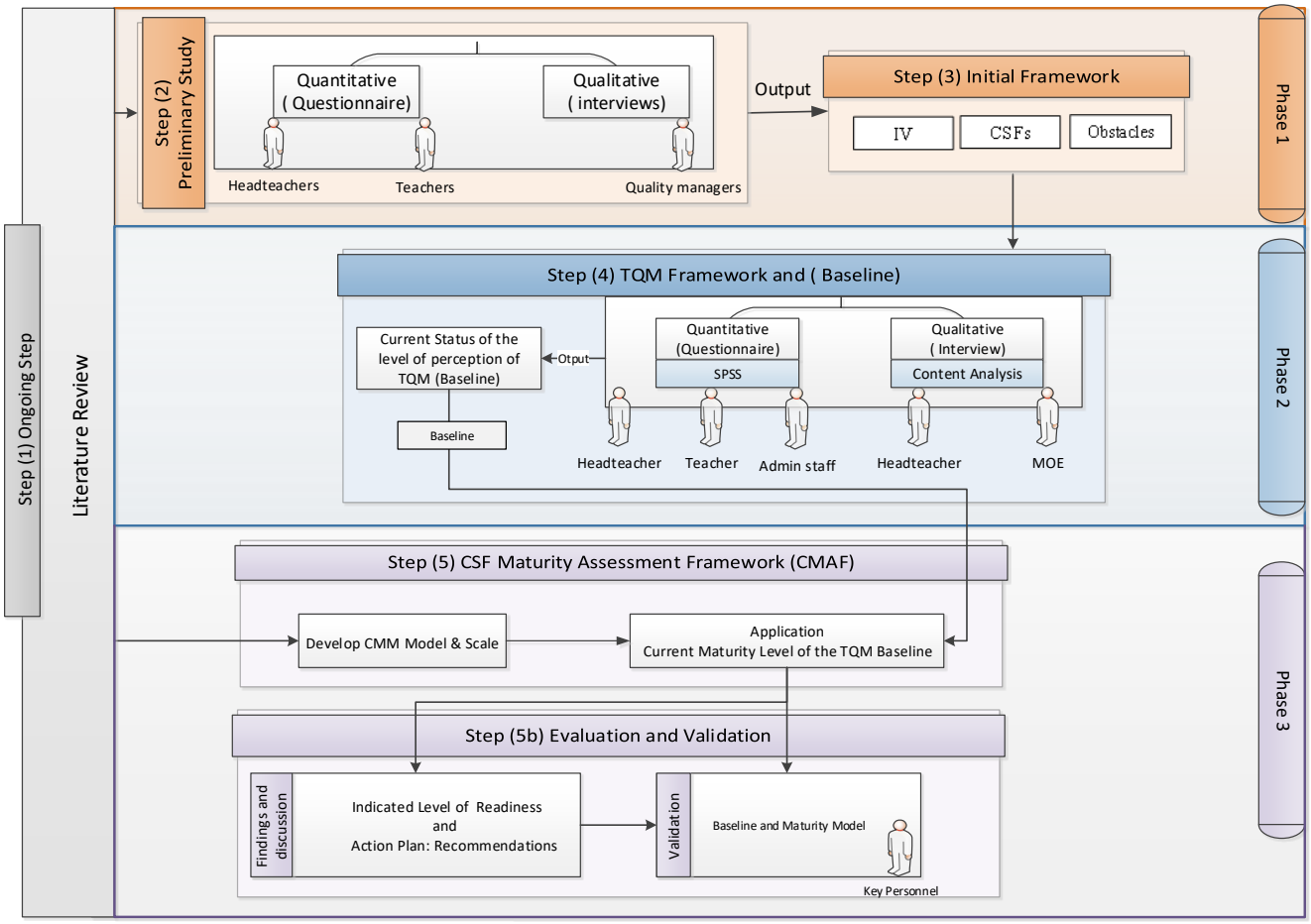

Figure 1-1: Research design

Phase One: (Literature Review and preliminary study): is to identify from the current literature the critical success factors of a successful TQM implementation and the most often encountered barriers that hinder or limit sustainable TQM implementation. From the literature review the research questions can be formulated. It is reasonable to undertake a preliminary study to assess the validity of the research and obtain additional information as input into the initial framework.

Phase Two: (Establish the baseline for TQM): the outcome of the initial framework is used to conduct a perception survey to gauge and understand the current level of the critical success factors (CSFs) implemented. The researcher recognises that perceptions are influenced by the prevailing national culture and that in the education sector itself there are cultural sub sets that exert an influence on thinking and actions.

As a TQM project is intended to transform the culture, the researcher needs to recognise the nature of the impact of TQM on the education sector in Saudi. This means that it must be determined whether there are current demographic variables that influence the perception levels of the CSFs being implemented. In addition, as TQM originated in manufacturing and industry, this may create issues for implementing it in education. Therefore, the researcher seeks to identify any perceived obstacles or barriers that are preventing or hindering the CSF implementation and what effect these obstacles have on progress. The perception level is the output of the second phase and forms the baseline of the TQM implementation.

However, as the data collected is context specific, the researcher needs to determine the reasons for differences or contradictions in the data collected between schools and between factors, especially as there is little previous research information about TQM in Saudi schools. The analysis of the outputs provide insight into the contextual factors – the nature and source of the influencing variables and obstacles that affect the respondents' opinions of the level of CSF implementation.

Phase Three: (Develop a CSF Maturity Framework): the results of the survey, the baseline, then needs to be assessed using a maturity model. The concept of staged progress and a sequence of CSFs need to be developed to support the schools' reflections on their current status and the proposed maturity level indicated by the model and also to determine ways to improve their TQM practices and progress.

As the Maturity Assessment Framework is a reference guideline, it includes a set of standards and characteristic attributes for each CSF that would provide evidence that the Critical Success Factor is being implemented. This tool reflects the evolving maturity of CSF's and skills in five stages over time. Finally it also needs a performance metric scale that indicates the graduation from one stage to another, to evaluate what improvements are required to increase the school's readiness. These improvements are recommended for action in subsequent steps.

The validation of the baseline, the maturity model, the assessment and level of Readiness indicate should then be validated by key personnel from the Ministry of Education..

1.5 Thesis Structure

The thesis divided into eight chapters. The following table describes each one briefly and shows the supporting appendices:

Table 1-1: Thesis structure

Chapter 1: Introduction		***Appendices***
This chapter provides an overview of the background to the research and presents the research problem, aim and objectives, the contribution of the study and the methodology. Finally, it gives an outline of the study.		Appendix A provides a detailed consideration of the Saudi education system
Chapter (2-3-4-5): Literature Review		***Appendices***
Chapter 2 Culture and Change Management	This chapter highlights the role of organisational culture and the reasons for the prevailing one to have a significant impact on whether the change initiatives which are implemented are sustainable in the long term.	
Chapter 3 Total Quality Management	This chapter describes TQM Principles, tools and techniques and quality awards.	**Appendix B** provides an overview of the history and development of TQM and some quality gurus
Chapter 4 TQM in Education	This chapter considers TQM in relation to education in order to understand the conceptualisation and application of TQM in the education system, the role of TQM in Arabic education, what benefits education can get from implementing TQM and the concerns and impediments in implementing TQM in education, . The chapter introduces the concept and definition of CSFs in education.	**Appendix C** Provides the analysis of the barriers to TQM implementation in education
Chapter 5 People Capability Maturity Model (PCMM)	This chapter introduces the Capability Maturity Model and shows how the development of systematic evolutionary stages overcomes barriers to sustainable and permanent continuous improvement. The chapter considers how behavioural development in the stages are characterised and how this contributes to the transformation of culture. It addresses the benefits of using People CMM in change programmes such as TQM	
Chapter 6: Research Method		***Appendices***
This chapter describes the research design and process and the important choices of information and resources for the research strategy. It describes the three phases of research design. Phase 1 includes the literature review and preliminary study which is used to develop the initial framework; Phase Two includes the design of the data collection and analytical methods used to develop the main study and the		Appendix D Pilot Study Correspondence Appendix E

results of the main study conducted to obtain the TQM baseline from a case study of Saudi secondary schools. Phase Three traces the development of the generic Capability Maturity Model Framework and the Application of the Maturity Assessment Framework to the TQM Baseline to assess the perceived level of maturity. It includes an assessment simulation to demonstrate how to determine the indicative level of readiness and construct a recommended action plan. It concludes with the methods selected to validate the baseline and maturity assessment framework and the findings of the research.	Pilot Study Correspondence Main Study Correspondence
Chapter 7: Initial TQM CSFs Framework	***Appendices***
This chapter aims to develop the initial framework and first considers the key factors and the relationship between the hard and soft aspects of the CSFs. Second, it considers the results of the preliminary study undertaken to assess the level of awareness of quality and the current status of TQM implementation in secondary schools.	Appendix G
Chapter 8: TQM Implementation Framework (Baseline)	***Appendices***
This chapter examines the results of the perceived level of TQM implementation progress in girls' high schools in Riyadh, Saudi Arabia. The chapter investigates the variables influencing the perceptions and the obstacles perceived to hinder their TQM implementation by head teachers. Finally this chapter presents the interpretation and recommendations regarding the level of employee readiness and their implications for the research aim and objectives.	Appendix H Tables of results of influences on the variable analysis
Chapter 9: CFSs Maturity Assessment Framework (CMAF)	***Appendices***
This chapter presents the development of the Maturity Assessment Framework and shows how the concept of maturity in the TQM principles is translated into knowledge and skills to deliver quality in a graduated and systematic way. The model indicates how the capacity and capability in the workforce can gradually improve the organisation's TQM readiness level and therefore overcome the major obstacles. The chapter then demonstrates how the CSF perception baseline are interpreted using the simulated maturity model and how the level of maturity can assessed taking an evidence based approach.	Appendix I The Indicative Maturity Framework Checklist and Guidelines
Chapter 10: the Key Personnel Interview (Validation)	***Appendices***
This chapter discusses how the results of the maturity model and the baseline assessment were validated by interviews with key officials from the Ministry of Education (MOE) who considered that it was a functional, effective, relevant and useful mechanism to assess the level of readiness for TQM implementation in the above-mentioned schools.	
Chapter 11: Discussion and Conclusion	***Appendices***
This chapter summarises the two stages of findings of the work and presents the value of the developed framework and shows how it contributes to knowledge in research and practice. In addition, the chapter presents the limitations of the research and details future work that can guide research into areas where there is still potential for practical and academic development.	

2 Culture and Change Management

This chapter highlights the role of social culture and the reasons that the prevailing organisational culture has a significant impact on whether a given set of change initiatives are sustainable in the long term. The chapter considers Saudi culture and uses Hofstede's dimensions to examine the effect of Saudi culture on educational institutions together with the importance of selecting the appropriate change management strategy to bring about the desired change in the desired time frame. Finally the chapter addresses the need to prepare the organisation readiness for change. The chapter is divided into five sections.

Section (2.1): Culture

Section (2.2): Organisational culture

Section (2.3): Approach to change management

Section (2.4): Managing successful change

Section (2.5): Summary

2.1 Culture

'Culture' is a term which is used to describe a specific group, community, or nation's system of shared assumptions, beliefs, behaviours and values (Cheong, 2000). Here the primary focus is on social norms, ceremonies, human behavioural patterns, values and beliefs, both in the community and nationally. Culture is acquired and taken over from one generation and passed on to the next.

According to Hofstede (1980, p. 25) culture is "*the collective programming of the mind that distinguishes the members of one group or category of people from another*". It is made up of an amalgamation of what people say, think and make, of their traditions, customs, feelings, values and attitudes and is a visible manifestation of their values and the unwritten rules which underpin these.

Each region and country is characterised by its own specific culture and hence has its individual way of life. Islam has had a significant impact on Saudi Arabian culture, as have its history and traditions, so that Saudi Arabian culture differs from the culture of other countries and regions. In Saudi Arabia the culture influences management styles as

well as the decisions and behaviour of management. Differences between Saudi Arabian culture and the culture of other countries and regions exert a strong influence on the main groups in Saudi Arabia and on institutions and organisations (Alkahtani, Lock and Dawson, 2013).

2.2 Organisational Culture

Although there is no comprehensive definition of organisational culture (Jones, Jimmieson and Griffiths, 2005; Behery and Paton, 2008), many researchers have embraced a three dimensional view of organisational culture which is built on assumptions, values and artefacts (Schein, 2010).

The term 'assumptions' is used to refer to deeply-rooted beliefs about human nature and the organisational environment. 'Values' are the common beliefs and rules which control the behaviours and attitudes of employees, which means that certain ways of acting are personally or socially more acceptable than others (Rokeach, 1973, cited in (Jones, Jimmieson and Griffiths, 2005). 'Artefacts' are the most obvious types of language, behaviours and material symbols which are can be observed in an organisation.

Hofstede and Hofstede (2010) claim that these beliefs, values and significant assumptions allow members of organisations to identify proper, adequate and acceptable behaviour. Thus values appear to be crucial to creating an understanding of the culture of an organisation and must be considered a dependable indication of organisational culture (Jones, Jimmieson and Griffiths, 2005).

Jeffries, Evans and Reynolds (1996, p. 78) describe organisational culture as "*all the interaction, which take place between people, their relationships and the feelings that arise by their behaviour*". This applies throughout the organisation even though sub-units such as the functional departments, product groups, hierarchical levels, or teams may have their own specific culture (Cameron and Quinn, 2006).

These definitions indicate that the prevailing culture of an organisation offers a corporate framework which gives direction in areas such as the way in which work should be carried out, the way people think, how technology is used and what the norms are for interaction and communication. A greater understanding of these areas enhance communication and

interactions inside and outside the organisation, which may contribute significantly to there being positive progress. These then set off a chain reaction which impact on an individual's performance, which in turn affects a firm's performance (Karimi, 2012).

2.2.1 The impact of organisational culture on the culture of schools

Schen (2010), Kilmann, Saxton and Serpe (1985) and Cheong (2000) all believe that that there may be a hierarchy of culture which runs from classroom to school, to community and to society or nation and which exists alongside a hierarchy of shared values, assumptions and norms (overt attitudes and behaviours).

The society's culture works alongside education, with group intentions, norms, institutional expectations and personal characteristics impacting on the expectations and performance of teachers and students and on the roles that they play. The interplay of contextual cultures and performance and teacher and student outcomes is shown in Figure 2-1 below:

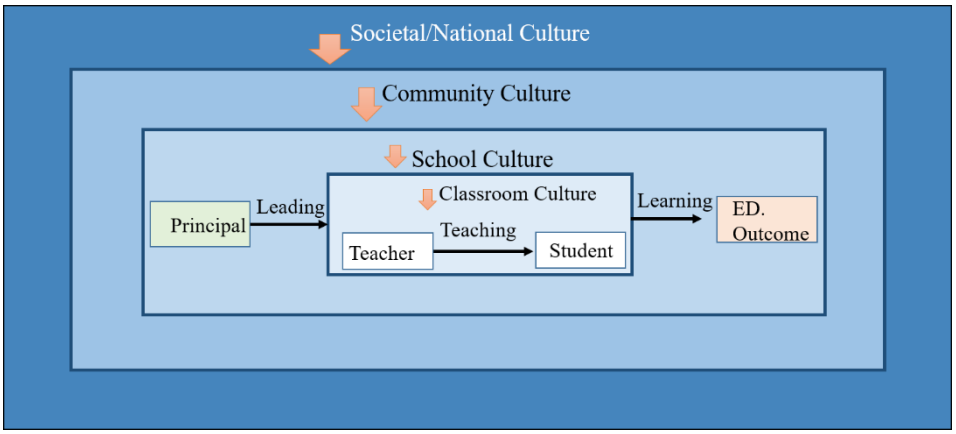

Figure 2-1: Multi-level cultures and educational effectiveness (Cheong, 2000).

Thus a society's most significant features, social norms, values and assumptions may be reflected in both the community culture and the school and classroom culture (Stoll, 1998; Cheong, 2000). They are at the centre of the school culture, which makes this difficult to grasp and to modify. Indeed school culture is among the most multifaceted and significant aspects of education and yet has been largely ignored when thinking about improving schools (Stoll, 1998).

Stoll and Fink (1996) and Stoll (1998) claim that each school has own individual reality and way of operating and that this reality frequently influences the teachers' unconscious beliefs and perceptions.

2.2.2 **Saudi organisational culture and its impact on schools**

Hofstede carried out basic research on the values prevalent in different countries and how these affect behaviours; he proposed a standardised performance index which measured four dimensions and these dimensions were then used to analyse and compare the culture of 56 countries and later of 100 countries. These dimensions can be applied to obtain a greater understanding of how Saudi cultural traits are exhibited in the workplace in general and specifically in the education sector.

So as to offer a better understanding of the way that the Saudi national culture as a whole impacts on organisations overall and on the education sector and the student/teacher relationship in secondary schools, the values for Hofstede's four dimensions for Saudi culture are applied to offer a comparison with the norms in education in cultures which resemble Saudi Arabia's. As observed by Hofstede, Hofstede and Michael (2010), the four dimensions are:

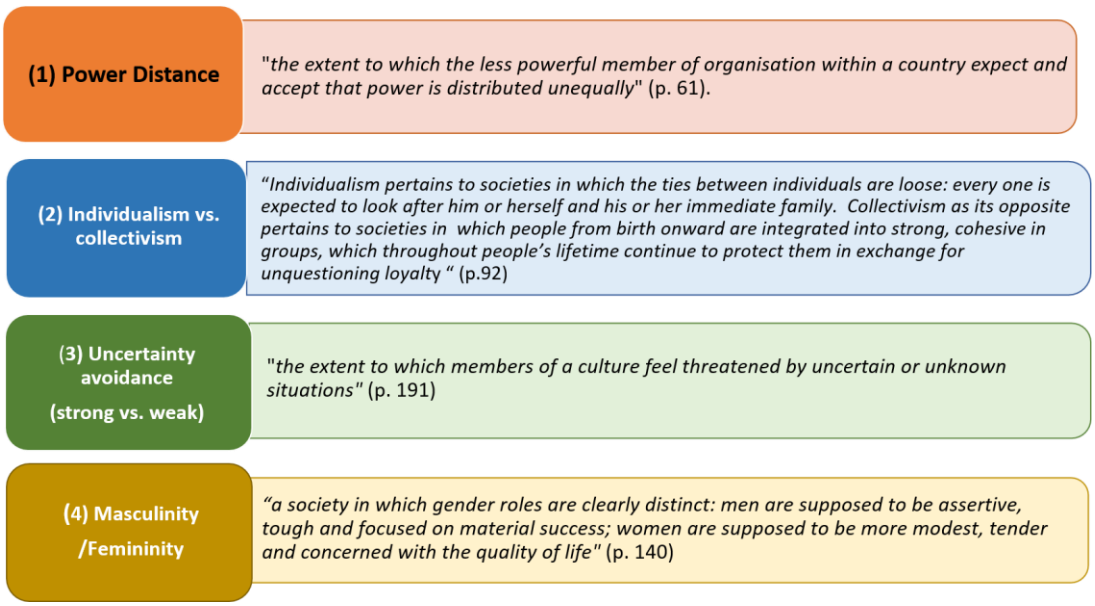

Figure 2-2: Hofstede's dimensions of national culture

2.2.2.1 Power distance

Hofstede measures power distance as an index. The value for Saudi Arabia is 73, which is at the top end of the scale. This high value indicates that Saudi Arabia is a hierarchical society (Bjerke and Al-Meer, 1993).

The business culture in Saudi Arabia and Saudi Arabian's organisational structures are inclined to be extremely authoritarian, paternalistic, autocratic and hierarchical (Muna, 1980; Bjerke and Al-Meer, 1993). In such structures the manager is expected to make decisions which are then passed down the chain of command to subordinates where they are put into effect. Managers are supposed to offer clear guidance on the actions which should be taken and how to implement them (Alkahtani, Lock and Dawson, 2013). In most Western organisations, this would be classed as micromanagement and would be considered objectionable.

It is therefore doubtful that joint decision-making can be widely embraced by Arab management; indeed the open-door policy is applied to only a limited extent among Arabs. Only a small select group of people share power and managers encounter little resistance from their subordinates (Muna, 1980; Bjerke and Al-Meer, 1993).

Hofstede (1980) suggests that in countries such as Saudi Arabia which have high levels of power distance, subordinates are heavily dependent on their managers and assume that the superiors act autocratically. In Saudi Arabian organisations, it is accepted that managers are the leaders and it is not expected that the subordinates, who are the followers, take the initiative. If leaders do not offer their juniors any direction in what needs to be done, tasks not be completed; if they do not ask for a job to be done, it be neglected (Ali and Schaupp, 1992; Alkahtani, Lock and Dawson, 2013). Questioning a manager's authority or acting without instruction is classed as being disrespectful. This smothers creative thinking and undermines accountability, which then creates difficulties if managers are striving to enhance performance and increase productivity.

According to Lamber, Nieto and Hafer (1986) Saudi Arabian managers manage the performance of their subordinates using an approach which is very different to that used by American or Japanese managers. Saudi Arabian managers are much more paternalistic; it is considered disrespectful if managers do not continuously express their

appreciation of their subordinates and management constantly do so (Bjerke and Al-Meer, 1993). Furthermore, it is vital for managers to preserve their dignity and to command the respect of others. Indeed these are considered more important for managers than to put pressure on employees to meet deadlines or increase productivity. It is vital not to 'lose face' (maintain one's dignity), so Saudis frequently be unable to accept criticism and to admit that anything is going wrong. Thus no attention may be paid to problems and these may be ignored, since showing any weakness would amount to accepting criticism and losing face. In this way, initiatives to increase a firm's efficiency and effectiveness are undermined (Alkahtani, Lock and Dawson, 2013).

The implications of power distance for behaviour for education

Thus it has been established that Saudi Arabia has a high level of power distance. Comparing the work of (Huib and Carel, no date; Hofstede, Hofstede and Michael, 2010), Table 2-1 shows that in countries high in the power distance scale great respect is shown to teachers and parents and students seldom question or disagree with them; here the quality of learning depends completely on the teacher.

Table 2-1: The implications of power distance for behaviour in the education sector

High Power Distance	Low Power Distance
Less powerful people (students or younger staff) should be dependent on superiors; there is strong polarisation between dependence and counter dependence.	There should be interdependence between less and more powerful people.
Parents teach children obedience.	Parents treat children as equals.
Children are a source of security for elderly parents.	Children play no role in the security of elderly parents.
Education is more teacher-centred; teachers take the initiative in class.	Education is more student-centred; teachers expect initiative from students in the class
Quality of learning depends on the excellence of the teacher.	Quality of learning depends on two-way communication and partly on the excellence of students.
Educational policy focuses on university.	Educational policy focuses on secondary schools.
Teachers are experts who transfer impersonal truths.	Teachers are seen as 'gurus' who transfer personal wisdom and knowledge.
Student expects teachers to outline paths.	Teacher expects students to find their own paths.
Teachers are never contradicted nor criticised.	Students are allowed to contradict & criticise.

2.2.2.2 Individualism vs. collectivism

The value for Saudi Arabia on this dimension was 41, which is closer to the collectivist end of the scale than is the case in an individualistic society such as the USA, where the individualism index is 91, whereas it is less collective than Venezuela, with a value of 12.

In Saudi Arabian society, managers consider family and friendship to be significant elements in the functioning of institutions and groups. Managers depend more on family ties resulting from family and friendships to accomplish tasks in the organisation than on a formal planning system or a policy. Thus such policies and procedures are a veneer, with the organisation's operations actually riding on the actions of specific smaller groups or factions and family groups (Muna, 1980; Bjerke and Al-Meer, 1993).

Carrying out business in Saudi Arabia is dependent on social networks which are used to find potential employees who are known and can be trusted. Thus nepotism and favouritism are rife and are frequently used to recognise and reward family and friends since such personal relationships result in mutual benefit and trust (Alkahtani, Lock and Dawson, 2013).

The implications of collectivism vs. individualism for education

Using Hofstede's dimensions, it can be seen that Saudi Arabia tends to be a collectivist culture. Comparing the work of (Huib and Carel, no date; Hofstede, Hofstede and Michael, 2010), in Table 2-2, it can be observed that Saudi students seem to prefer to study collaboratively in a group and not to work individually. Teachers direct questions to the class as a whole or to small groups and not to individuals. Students only speak up if the teacher or the group asks them to. There is no individual appraisal; the teacher does not commend or reward individuals but rather the group and teachers and students advance their education by acting on their peers' recommendations.

Table 2-2: Implications of collectivism vs. individualism for education

Collectivist	Individualist
Students speak up in class only when called on by the group.	Students are expected to individually speak up in class.
Students only speak up when called on by the teacher.	Students volunteer answers in response to a general invitation from the teacher
The purpose of education is learning how to do.	The purpose of education is learning how to learn.
Occupational mobility is lower.	Occupational mobility is higher.
Direct appraisal of subordinates disturbs harmony.	Management training teaches the honest sharing of feelings.
Formal harmony in learning situations should be maintained at all times.	Confrontation and challenge in learning situations can be brought into the open.
Neither teacher nor student should ever be made to lose face	Face consciousness is weak.
Teachers are expected to give preferential treatment to some individuals, for example on the basis of ethnic affiliation or recommendation.	Teachers are expected to be strictly impartial.

2.2.2.3 Uncertainty avoidance (strong vs. weak)

Hofstede's results over 40 countries show how much variation there is in this dimension. Here Greece has the highest value with 112 and Singapore the lowest (8). The value for Saudi Arabia is 74, meaning that Saudi Arabia ranks high among uncertainty avoiders.

Societies cope with uncertainty with the aid of technology, laws and religion, while organisations draw on technology, rules and rituals. Among the uncertainty avoiding rituals which organisations use are writing memos and reports, accounting systems, control systems, planning systems and expert consultants. Many of Hofstede's findings of applied in Saudi Arabia indicate strongly that Saudi Arabia is a high uncertainty avoidance country.

Due to their background as Muslims and Arabs, Saudi managers consider behaviour that departs from Islamic teachings to be unacceptable and are devoted to their organisations. They dislike conflict, but, if they have to deal with it, attempt to resolve it by means of authoritarian behaviour (Muna, 1980).

A further noteworthy point in relation to avoiding uncertainty is the degree of fatalism which Saudis (and nationals of other Arab countries) show. It is commonly thought that this fatalism contradicts the spirit of initiative which is seen in many Europeans and Americans. However, according to Muna, Arab managers are not fatalistic but are future-oriented, plan rationally and strive to avoid negative outcomes (Muna, 1980; Bjerke and Al-Meer, 1993).

If Saudi Arabian managers are compared to their opposite numbers in America or Japan, American managers are seen to set great score by change, while strong uncertainty avoidance results in Japanese managers, for example, exercising more caution, as do Saudi managers (Bjerke and Al-Meer, 1993).

2.2.2.4 The implications of uncertainty avoidance for educational behaviour

Saudi Arabian culture presents a high level of uncertainty avoidance. Comparing the work of (Huib and Carel, no date; Hofstede, Hofstede and Michael, 2010). Table 2-3 below shows that in such a culture the main consideration in the classroom is that students should learn and understand the facts. Students find most acceptable a structured learning

environment in which teachers give exact instructions and detailed direction and where assignments have only specific correct answers. However, this type of learning environment discourages initiative and experimentation, favouring instead straightforward learning with clear descriptions.

In contrast, where there are lower levels of uncertainty avoidance, education is seen as a voyage of discovery where the unfamiliar is not thought of as something to be feared.

Table 2-3: Implications of uncertainty avoidance for educational behaviour

High Uncertainty Avoidance	Low Uncertainty Avoidance
Students are comfortable in structured learning situations: ▪ Precise instructions, Detailed assignments and strict timetables	Students comfortable in unstructured learning situations: ▪ Broad assignments and no timetables
Teachers are expected to have all the answers	Teachers may say "I don't know"
Individuals need structure and definite answers; want to know the 'right answer'	Individuals accept open ended discussions and there is little need for 'one right answer'
Good teachers use academic language	Good teachers use plain language
Students are rewarded for accuracy	Students are rewarded for innovative approaches
Teachers see intellectual disagreement as personal disloyalty	Teachers see intellectual disagreement as stimulating

2.2.2.5 Masculinity/femininity

In Hofstede's research Sweden (with 5) was the most 'feminine' country, while Japan (with 95) was the most 'masculine'. Saudi Arabia (with 43) was on the 'feminine' side of the scale and had a similar score to Turkey's (45) and Iran's (43). In Saudi Arabian society showing concern for others and maintaining cordial relations is considered very important. According to Arab managers, employees expect 'care', 'control, 'guidance', 'respect' and 'kind and humane treatment'. Indeed, Arab executives find some of the ways that foreign businessmen or expatriates treat employees completely unacceptable and may describe them as treating employees 'like machines', or as 'ruthless' or 'inhumane' (Bjerke and Al-Meer, 1993).

The implications of femininity vs. masculinity for education

It has been established that Saudi Arabia is a relatively 'feminine' society. Comparing the work of (Huib and Carel, no date; Hofstede, Hofstede and Michael, 2010),

Table 2-4 shows that in such a society academic failure is not thought of as a threat and does not attract much attention; instead teachers praise less able students in order to encourage them to progress. The system stresses social adaptation and 'modesty'.

Table 2-4: Implications of femininity vs. masculinity for education

Feminine	Masculine
Teachers use average students as norms; praise for weak students.	Teachers use the best students as norms; praise for excellent students.
Falling in school is a minor incident.	Failing in school is a disaster.
Women and men teach young children.	Women teach young children.
The system rewards students' social adaptation	The system rewards academic performance
Students try to behave modestly	Students try to make themselves visible
Students choose subjects out of interest	Students choose subjects for career reasons

2.2.2.6 Gender and communication

Another aspect of Saudi culture which, although not directly linked to Hofstede's dimension is significant in this research on organisational culture, is the physical segregation of men and women; this is a result of the way that Islam is interpreted in Saudi Arabia. Thus men and women who are not related are not allowed to have any individual face-to-face interactions with each other. Women in Saudi Arabia may be employed in organisations which employ both sexes, but are not allowed direct contact with men. As a result emails or phone calls (landline and mobile) are used for most communications between women and men (Sabbagh, 1996; Alkahtani, Lock and Dawson, 2013). The segregation of the sexes can impact negatively on the provision of services because these may have to be duplicated to cater to men and women separately and can also result in communication failures.

2.3 The Management of Change

Moran and Brightman (2000, p. 66) have described change management as '*the process of continually renewing an organisation's direction, structure and capabilities to serve the ever-changing needs of external and internal customers'*. According to the literature on the meaning of educational change, change is multidimensional and can thus take different forms in the same person and in the same organisation. In *Management Theories for Educational Change* (1998, p. 13) Morrison elaborates on educational change as follows: '*a dynamic and continuous process of development and growth that involves a reorganization in response to felt needs. It is a process of transformation, a flow from one state to another, either initiated by internal factors or external forces, involving individuals, groups of institutions, leading to realignment of existing values, practices and outcomes'.*

It is generally agreed that change must be properly managed for it to last and to be successful in the current extremely competitive and constantly developing environment (Okumus and Hemmington, 1998; Todnem, 2005). However Balogun and Hope Hailey (2008) claim that approximately 70 percent of all change programmes fail, although Hughes (2011) does not accept that there is such a high rate of failure. Nevertheless most of the literature agrees that the majority of change initiatives do not reach their goals. This low success rate may point towards the lack of a sound framework for the implementation and management of organisational change due to the large number of conflicting and bewildering theories and approaches which are available at present (Burnes, 2004; Todnem, 2005).

Various reasons have been put forward to account for the difficulties which arise when trying to change organisational culture. Goetsch and Davis (2006) describe organisational change as a 'clash between cultures', with companies or organisations including representatives of two different types of attitude to change: the 'advocate culture' and the 'resistance culture'. Figure 2-3 shows that the 'advocate' concentrates on the expected benefits of change, while the 'resister' concentrates on potential threats to status.

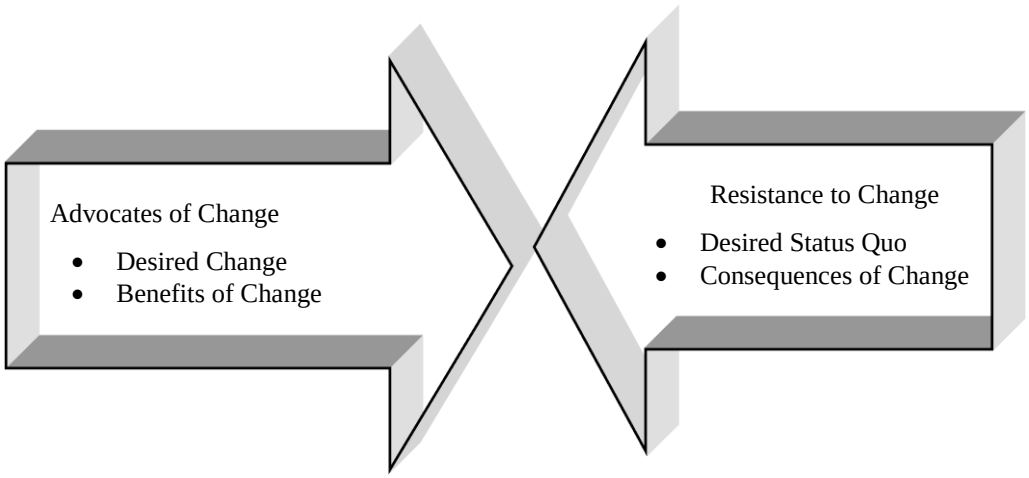

Figure 2-3: Change creates the classic confrontation
(Goetsch and Davis, 2006, p. 183)

Psychological and emotional considerations are an important element in relation to perceptions of change and the degree with which employees resist change. Chaffey and Wood (2005), cited in (Jonhill and Lehner, 2008, p. 28)describe the sequence of employees' emotions during change as beginning with shock and denial, going through a

middle phase with emotions at a low ebb, possibly accompanied by fear, anger and depression, until finally the changes are slowly accepted and indeed understood.

It is important to reflect on the implications of change for the organisation. Balogun (2008) points out that people are at the heart of any change. Naturally products, technology and physical assets can all be changed, but for change to truly take place in an organisation, its members must also modify their behaviour. Lewin (1946), cited in (Burnes, 2004)suggests that in change people have to take on new behaviours, structures and processes and leave behind any earlier ones.

Nevertheless Balogun and Hailey (2008) point out that people are not machines who alter their behaviour merely on the basis of a plan. They have their own minds and choose to act as they. As change involves people and people may act in a variety of often arbitrary ways, merely developing a plan not bring about change. If this is not recognised, two lethal weaknesses may arise in change plans which are in every other way impeccable in their attention to detail and in their scheduling – the belief that it is possible to control the reactions of employees to plans and the lack of any mechanism in the plan to manage the change process.

According to Balogun and Hailey (2008) there is no single best approach to change. To change organisations, people must change and any attempts at implementation must take into account the political, cultural and social features of the organisation. For this reason, a context-specific method must be developed.

A further significant feature of the context is whether the change is planned or emergent (Bamford and Forrester, 2003). Since many dependencies are involved in change, there is no generally accepted, obvious practical approach which shows the changes organisations must make and how they should be implemented. However, the consensus of opinion is overall that the planned approach to organisational change aims to shed light on the processes that result in change. Additionally this approach suggests that it is necessary to focus on the need to understand the various stages which an organisation should move through to progress from the original unacceptable state to the one aimed for (Todnem, 2005).

In conclusion, even though change is necessary and is often used to support competitive organisations that must maintain their relevance for their customers, more than 70% of all change initiatives are at present unsuccessful. Although there are various reasons for this lack of success, the fundamental cause is that those instigating change do not bear in mind that every change situation varies and that the people involved act in response to being asked to modify their behaviour and these responses must be taken into account in the change strategy and plan. Additionally when a planned change is taking place, the strategy must clearly indicate how progress should be made between one state and the other. Thus there is no universal approach or framework, but management must choose the approach it should use and should modify it according to the inherent dependencies and the context.

2.4 Approaches to Change Management

Change management approaches are linked to identifying and managing the processes planned to make organisations more successful. The next few paragraphs focus on approaches to planning and implementing the changes required for achieving, or shaping, strategic objectives in organisations. The literature review determined that, of the many organisational change approaches three are the most often considered and adopted; these are re-engineering, the development of learning organisations and total quality management (TQM). These are discussed below.

2.4.1 **Re-engineering**

Re-engineering as one approach to organisational change has been defined as *"the fundamental rethinking and radical redesign of business processes to bring about dramatic improvements in performance in critical measures of performance such as cost, quality, service and speed*" (Hammer and Champy, 1993, p. 46).

Reengineering then has the advantage of being a potential choice when there is not enough time to redesign an organisational process. It is also a simple and quick method for an organisation that needs a quick response or immediate change. It is suited to achieving fast and significant performance improvement through a major investment in

new technology automation. Re-engineering has the advantage of dealing with major issues up-front rather than avoiding them (Dervitsiotis, 1998; Dale, 2003).

Leadership is the key ingredient for success in re-engineering; it is a decision driven by the topmost levels of an organisation rather than by local management and does not offer any opportunity for employees to participate (Hammer and Stanton, 1995). According to Tunç (2013, p. 50) re-engineering in educational institutions " *have a case manager who be in charge of the entire process. The case manager admit the student, determine the financial aid, assign housing, advise as to what classes to take, perform the registration process, teach classes, report grades and authorize his or her graduation*".

Dervitsiotis (1998) states that re-engineering is often implemented with support from an external group of experts who are asked to make the changes necessary to address problems where a change is long overdue. This sends a clear message that management is serious and provides clear specifications regarding the nature of the desired change.

Re-engineering involves restructuring – mostly downsizing and delayering – of organisations and their systems and '*reshapes the organisational workforce and the internal processes.'* Generally, *'it removes layers of supervisory management from the organisation and re-engineers the roles and jobs, so people are required to take on new responsibilities and perform additional tasks previously performed by their supervisor or manager'* (Tunç, 2013). According to Naseh in his article 'Reengineering in Higher Education' (2004) cited in ALNabhani, 2007, the managers' role changes to become more that of a coach than to issue instructions. Practically every aspect of an organisation is transformed, often beyond recognition.

Hammer and Stanton (1995) describe re-engineering as involving the four steps described below:

1. Recognise stakeholder requirements and ascertain where the current processes have weaknesses based on performance, or do not meet stakeholders' needs.

2. Draw up a new process which complies with the performance requirements of stakeholders; it may be necessary to radically alter the rituals, norms and long-standing assumptions of the organisation.

3. Completely develop the new process by giving specific details of its operation, establishing the way this is interconnected with the other organisational processes (which it may be necessary to change), identifying which processes may need to be modified, ascertaining the implications for all facets of the organisation, training staff, introducing new tools, creating essential information systems, etc.

4. Decide on a date for all the old processes to be withdrawn and for new ones to be introduced to replace them, so that there is a specific schedule for discontinuing processes used previously, resulting in a new and responsive organisation.

Although re-engineering demonstrates impressive improvement and gains in critical performance factors, such as cost, cycle time, etc. at first, it is difficult to sustain these gains in the long term because they make no allowance for employees and middle management to adjust, so staff often may not have the skills or capability to perform effectively, finding too much is expected from them too soon (Dervitsiotis, 1998). Furthermore, Dale (2003) considers a lack of attention to the so-called 'soft issues' to be one of the disadvantages of re-engineering, alongside lack of participation, which means that no change to the underpinning cultural and behavioural foundation norms of beliefs, assumptions and values has taken place.

In today's dynamic environment, implementing change involves a significant investment of time and resources and organisations are under pressure to ensure that the changes they make result in long-lasting (or permanent) change. Argyris and Schon (1996) propose that the approach by management to changing organisational learning is an alternative that results in enduring change.

2.4.2 **The learning organisation**

In their book *Organizational Learning: Theory, Method and Practice* (1996), Argyris and Schon examine organisational learning and consider the ways it can be used when in managing change. They define organisation learning as the result of individuals being encouraged to share their knowledge, so that the knowledge flows through the organisation and this enriched knowledge enhances the performance at all levels of the organisation. This flow of knowledge can often be hindered by the hierarchy of the

organisation or by divisions between individuals; the education sector exhibits many such cases.

A fundamental activity in organisational learning is 'organisational inquiry'. Organisational inquiry always builds on the problematic gap between the expected and the actual outcome. According to Argyris and Schon (1996) the inquiry becomes an organisational inquiry when it is carried out by individuals acting as agents for the organisation in light of existing rules and roles. Thus achieving quality in an educational organisation which normally takes place on an individual level becomes an organisational achievement when the issue is included in the common agenda of all the affected staff and it is determined that other perspectives should also be taken into account (ALNabhani, 2007).

In essence, competitive advantage is gained from the learning organisation because the organisation can learn more quickly than its competitors. The learning organisation adopts a systemic view of the world, recognising the complex interdependencies and interrelations that must exist, but maintaining a focus with the customer at the centre. Thus employees recognise that everything they do has an impact on the customer. The learning organisation goes through a radical shift in attitude with individuals perceiving themselves and their setting as part of the world and not detached from it (Dervitsiotis, 1998). Senge (1990, pp. 3–5) observes:

"*learning organizations are those in which people: 1... continually expand their capacity to create the results they truly desire; 2... continually learn how to learn together; 3... share common goals that are larger than individual goals; 4... function together in extraordinary ways, complementing each other' s strengths [and] compensating each other' s limitations as part of a great team".*

The development of learning organisations depends on the mastery of five disciplines (Figure 2-4). To practise a discipline is to be a lifelong learner. A discipline is a body of knowledge, theories and techniques that must be studied and put into practice until it is mastered.

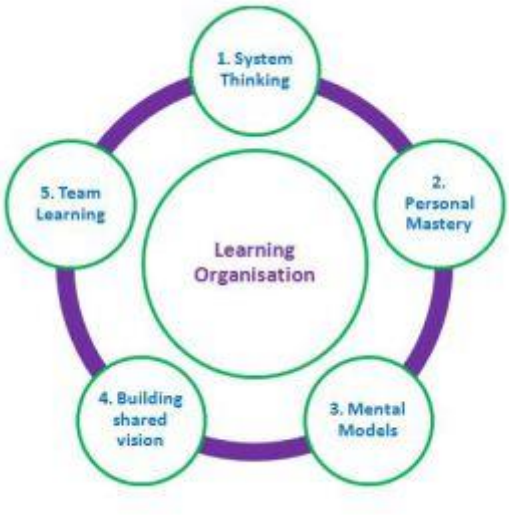

Figure 2-4: Component disciplines for creating a learning organisation (Garytremolada, 2015)

Argyris and Schon (1996) differentiate between two sorts of learning in an organisation: single- and double-loop learning. Single-loop learning is instrumental learning which affects strategies in relation to actions or to assumptions which are linked to strategies without altering the values of a theory of action. Thus organisations learn to adapt to changes in the context so as to initiate change in order to keep performance within the limits dictated by existing values. In contrast, double-loop learning is learning which brings about changes in the values of the theory-in-use and its assumptions and strategies. Here the term 'double-loop' denotes the two feedback loops which link the perceived effects of actions to strategies and their values. With this feedback organisations gain greater understanding of their own learning process.

For a learning organisation to develop, it needs the time through gradual phases to change thinking styles and to develop and master the skills in each discipline experienced through the double and triple loop learning curves before they operate closer to their full potential.

When organisational learning is used as a change management approach, the organisation proceeds through a spiral of continuous innovation and learning rather than merely moving through repeated cycles. Developing a learning organisations is a slow process that initially shows little or only modest improvements until the new behaviours and disciplines become fully operational and embedded, when the performance accelerates

significantly. This approach however is not suitable if organisations are under pressure to make changes too rapidly.

2.4.3 **TQM**

Total Quality Management (TQM) is one of the most successful change management approaches and has been broadly applied by the management of many educational establishments seeking to implement the changes required these days with limited funding.

TQM systematically sets about reaching the standards of quality necessary to consistently achieve or go beyond customers' requirements and expectations (Sallis, 2002). Constant innovation, improvement and change are emphasised and the organisations that practise it are locked into a cycle of continuous improvement.

Success in TQM requires that each of its three elements is tightly integrated (Macdonald, 1998, p. 6); the three parts of the name can be defined as follows:

- With total quality management, all members of the organisation have a part in producing the end product or service for the stakeholder and each work process or activity plays a role in achieving overall success.
- With quality there are requirements which must be complied with; this makes it possible to measure quality.
- With suitable management, TQM is not a matter of chance but is a management process which involves individuals, systems and the tools and techniques which support them.

The TQM pyramid introduced by Dahlgaard, Kristensen and Kanji (1995, p. 7) in Figure 2-5 presents conceptually the main drivers emphasised by such TQM gurus as Deming, Juran and Crosby. The TQM pyramid defines TQM as the way to produce *"a corporate culture characterized by increased customer satisfaction through continuous improvement, in which all employees in the firm actively participate"*

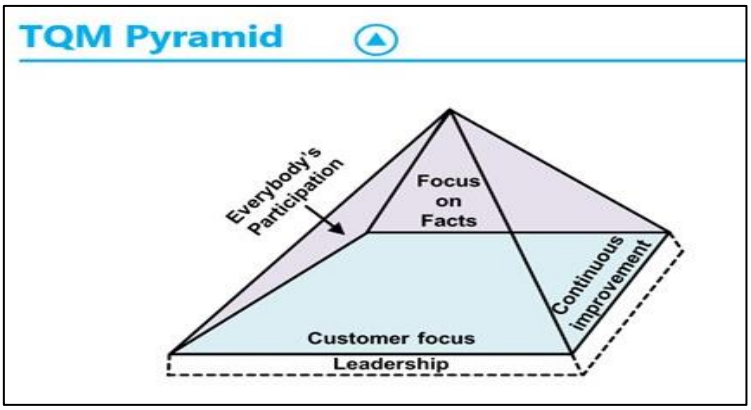

Figure 2-5: TQM pyramid

(Dahlgaard, Kristensen and Kanji, 1995, p. 74)

In the TQM pyramid, as TQM gurus agree, leadership commitment is the fundamental basis and it is impossible to implement the related drivers of involvement and participation, customers and stakeholder focus in educational institutions without it.

Morgan and Murgatroyd (1994) observe that acknowledging the vital importance of the role played by the stakeholder is the essence of the TQM philosophy. There is a range of customers in the education sector and it is essential that their characteristics are understood, that their attitudes toward the present education system are recognised and that their expectations are met. In TQM a large measure of attention is given to employees, which results in successful communication with employees at all levels and in all areas of the organisation and a managerial position which acknowledges the vital contribution which employees make in the way of ideas and actual skills (ALNabhani, 2007).

TQM engages the organisation through a shared vision that energises them to take a problem solving approach to continuous improvement at all levels and towards all functions in the organisation. The benefit of cross functional groups are that they are encouraged to cooperate together to solve the organisation's problems to ensure the end customers' needs are satisfied. Further, new techniques and methods are introduced to support the employees' freedom to look beyond current ways of working. The insights and proposed solutions that can be developed add value for customers using the PDCA (Plan± Do± Check± Act) method (Juran, 1988).

Figure 2-6 shows the route to TQM as a series of transitional stages where key processes undergo small but constant improvement (referred to as kaizen) which alternate with precisely targeted projects. These bring about large-scale interrupted improvements resulting in transformations that considerably reinforce a previous competitive advantage or in new ones which allow the future state (the vision) to be reached (Dervitsiotis, 1998).

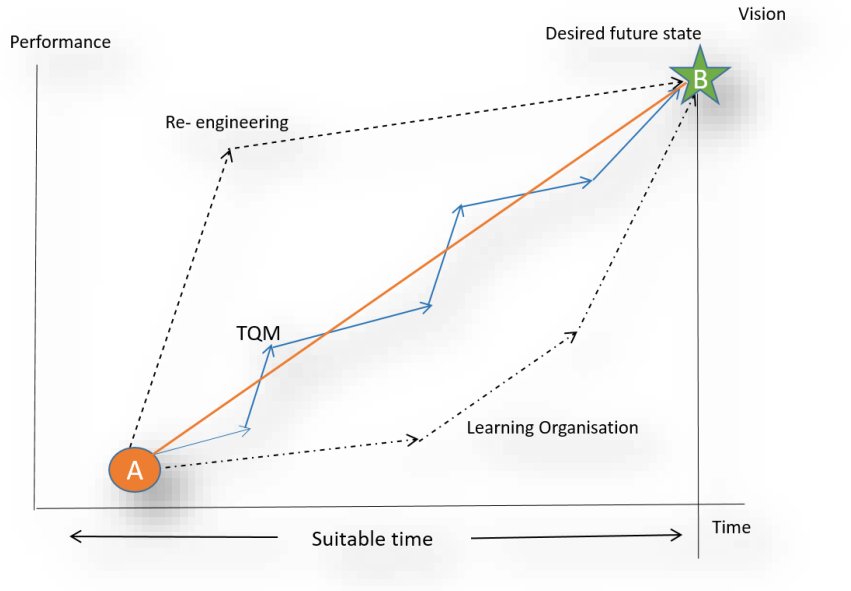

Figure 2-6: Options for managing organisational change
(Dervitsiotis, 1998)

2.5 Managing Successful Change

After the approach to managing change has been chosen, the next challenge is to plan how the change should be implemented. According to Juran (1989) cited by (Goetsch and Davis, 2006), implementing change-promoting strategies is one of the most important ways of overcoming obstacles to changing the organisational culture. Such strategies include: involving potential resisters in the implementation of a change, avoiding surprises; moving slowly when beginning to introduce changes to the organisational culture; creating a positive environment; and responding quickly and positively to potential resisters.

However, no matter how appropriate the change management strategy selected, Moran and Brightman (2000) stress that the implementation of organisational change rests on

the quality of the strategic plan, ensuring that the required supporting resources (in capacity and competence) are available and are used appropriately.

Todnem (2005) suggests that there is no single approach to organisational change management which is generally accepted, is clear and practical and gives specific direction regarding the changes that organisations must make and how they should be implemented.

Many change management approaches seek either to change the culture or to manage the change project. Kotter's 8 step model presents conceptual guidelines to approaching the change. The Best Practice Model proposed by Clarke and Manton (1997) describes the main steps to be followed. However, in most cases the guidelines tend to adopt a linear approach to change management based on the assumption that people's behaviour follows a plan and that, even with a sense of urgency, they buy into the change. It is for this reason most change management fails, for want of an essential ingredient which is called the 'unlocking the people' element (Burnes, 2011).

Kurt Lewin's pivotal work is at the root of one of the first basic approaches to change management. Lewin saw change as involving the transformation of the forces which keep a system's behaviour in equilibrium. He suggested that earlier patterns of behaviour have to be abandoned before change can take place and different types of behaviour can be successfully introduced (Todnem, 2005). Furthermore, for a change project to succeed it must go through three stages (Morrison, 1998; Burnes, 2004; Changingminds.org, 2007): During the first step of the change many employees do not wish to change but instead choose to stay where they are. The **unfreeze stage** is to motivate these employees. Unfreezing usually requires recognition that the existing practices are no longer effective. This stage is about educating the employees who would prefer not to change on the benefits of the change and trying to convince them of its advantages. The aim of these activities is to fully persuade change agents that there is a great need to change.

Step Two**: Moving to the new level**. In this stage the behaviour of the organisation which is the target of change moves to a new level. Here action is taken to shift the organisation to a more appropriate state when the need for it to move from its current state has been recognised. Alternatives are formulated and the most suitable one is chosen. New

behaviours, attitudes and values must be fostered by promoting changes in organisational structures and processes. A vital part of this stage is to make certain that these changes are accomplished in such a way that the change agents do not regress to the previous ways of doing things.

Step Three: Refreezing the new level. Here efforts are made to help the organisation to become more stable so that it be difficult to move away from the new style of working. This occur only if attention is paid to introducing support strategies and mechanisms that positively reinforce new work practices; such strategies and mechanisms can involve rewards and develop organisational cultures, policies, structures and norms.

Lewin's model for managing change has the advantage that it is simple to follow and easy to implement; however it takes some time to complete (Changingminds.org, 2007).

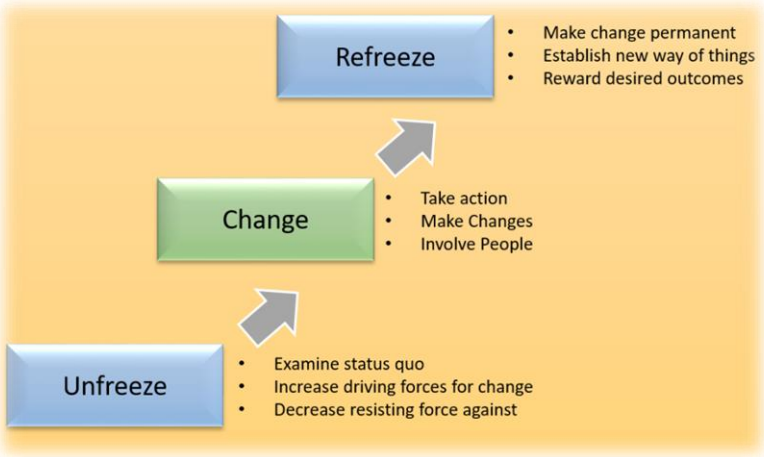

Figure 2-7: Lewin's model
Adapted from (King, 2016)

2.5.1 **Reviewing and assessing the progress of change management**

Managing the process and ensuring that the desired performance is being achieved is the last phase of project management; along with 'Plan and Do', there also need to be 'Check and Act'. Once the implementation project has been initiated (Plan, Do), it is essential that the progress of the management of change is monitored (Check, Act) to assess whether it is achieving its intended aim and to support management in taking the necessary corrective action to keep it on track or to respond to unforeseen occurrences.

Monitoring and measurement must be carried out in each phase in order to measure the extent to which the plan is achieving the business objectives. At each stage, organisations should focus on the staff's and the students' resistance to the change.

Burke-Litwin developed a tool that promotes the integration of a range of TQM factors that need to be monitored to provide guidance in supporting and examining organisational change and performance. The model is based on the same underlying precepts as the EFQM MODEL in that it is an input-throughput-output model grounded in open systems theory (Burke and Litwin, 1992).

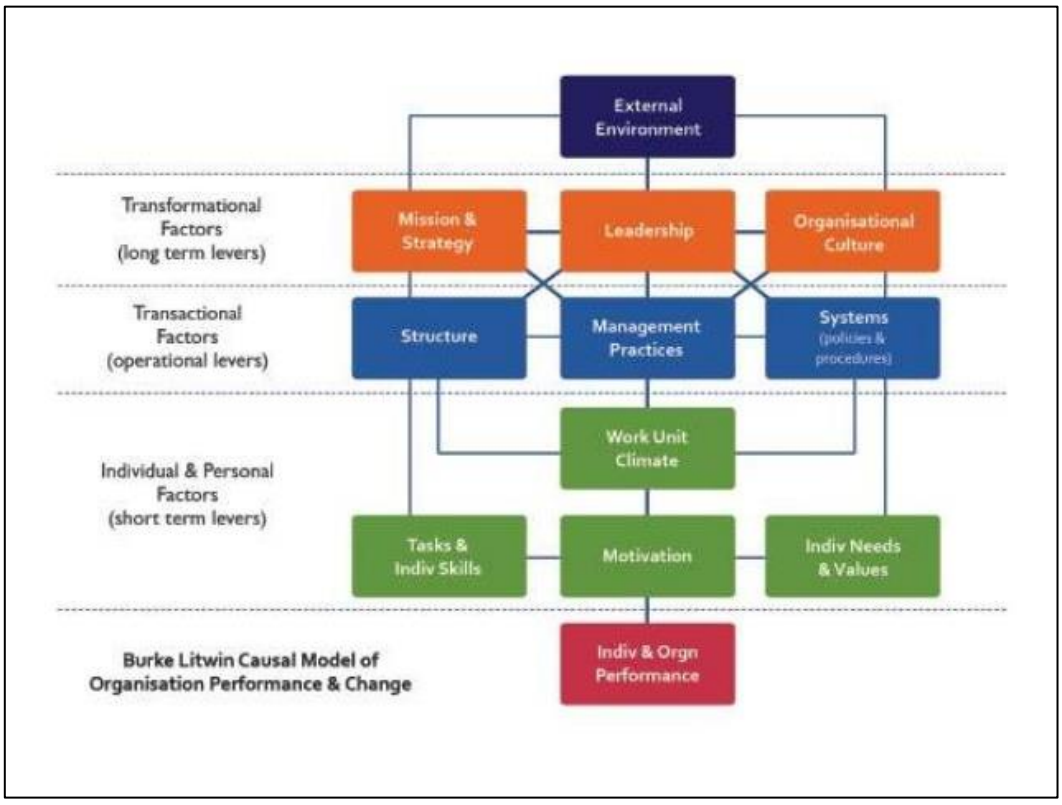

Figure 2-8: Burke –Lutwin's model

This model has been modified to apply to organisational change in the context of school-wide programmes, as shown in Figure 2-9 (Adapted for schools).

The model links internal and external factors. It predicts that change in individual and organisational performance is the result of change in 12 key areas of organisational design. The tool recognises that transformational factors produce a higher level of performance than transactional factors do.

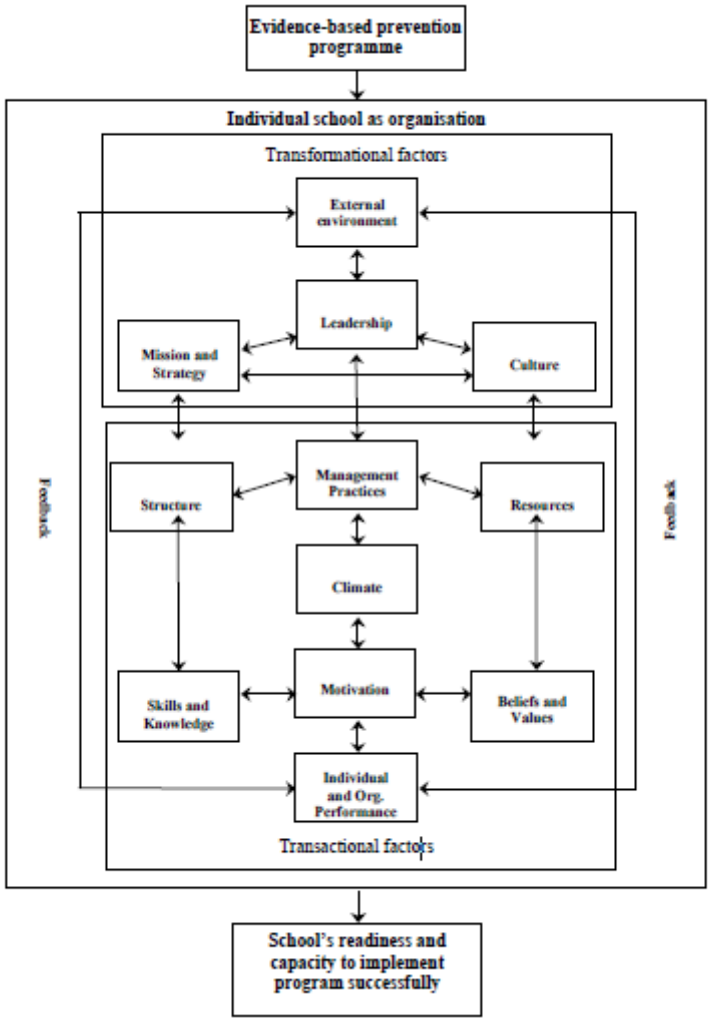

Figure 2-9: A model to guide the assessment of readiness and capacity in schools adapted from the Burke-Litwin model (Hultman *et al.*, 2012)

Transformational factors are concerned with areas where new staff behaviours must be introduced because of external and internal environmental factors. Some of these factors are leadership, culture, strategy and mission. Transactional factors, however, are related to psychological and organisational variables which allow the motivation and performance levels of a work group to be predicted and controlled under the influence of the work group climate (and that of the school).

The model distinguishes the actions that have an impact on the organisational culture, which requires transformational change from those actions that impact on the organisational climate, the everyday processes and transactions. The model recognises that the culture is a result of the everyday transactions and the associated behaviour that

characterises the climate. Therefore the model emphasises that if transformation is to be achieved then it is important that the everyday transactions and processes at the individual teacher level, the work groups and departments, have to form the basis of the change programme.

In other words, if the transformation is to occur the focus must be on changing the way that teachers and workgroups work at the very basic transactional level (Hultman et al., 2012). However, if the change programme is to be successfully implemented it is important that the individuals or groups in the organisation have been adequately prepared to reduce the scepticism of their attitude. As the proposed changes are expected to change beliefs and values, the role of leadership and mission clarity needs to encourage and engage the employees to overcome the strong critical attitudes that greet imposed changes. This result in negative perceptions that prompt active and passive resistance, presenting obstacles that undermine the efforts to change.

Hence, the way that the desired school culture is transformed through the organisational climate transactions exerts a major influence on the readiness to change among the employees. Acknowledging that employees need to be adequately prepared to improve their readiness is therefore an important factor. This preparation need to address ways to build capacity and capability in the employees and the organisational climate to implement school-wide programmes successfully (Fullan, 1993; Hultman *et al.*, 2012).

2.6 Summary

This chapter focused mainly on the significance of culture, its impact on managing change and the importance of enabling organisations, in this case in the education sector, to become more flexible and efficient in their response to external stimuli and in turn their competitiveness.

This enabling process is achieved through managing change, but such a process is recognised as complex; it has no widely accepted definition and research identifies many barriers, obstacles and models and strategies within it.

The most significant factor in change management is recognising the role of people in the organisation and the significance of culture. Employees who are expected to alter their

behaviours must buy into the objectives of such change and remain motivated throughout the change process or the culture not change fundamentally and the desired outcome not materialise.

The review of Hofstede's four dimensions enables us to consider and interpret the cultural factors which in the Saudi context have significant implications that must be considered in the management of change.

First, Saudi Arabia's hitherto high level of power distance stands in the way of implementing the TQM practice of involvement and empowerment in Arab organisations; hence, not only management have to significantly change its attitude, but employees also need support, training and encouragement before they can accept the higher levels of responsibility and accountability that follow taking the initiative and becoming more creative. Both managers and employees therefore need to learn new skills and to spend more time in learning in order to adapt to these counter-cultural new dynamics. At the same time, they also need to learn to accept criticism, make mistakes publicly and deal with problems in a clear, supportive way that help improve performance.

Similarly, in the education system, the current relationship between the role of the student and that of the teacher also hinder the application of TQM. Students and teachers alike need time to accept the need to change traditional approaches, develop new skills and learn how to encourage independent critical thinking in students.

Second, since Saudi Arabia tends to be a collectivist culture. The highly structured learning environment orients the behaviour of Saudi students to collaborate rather than acting individually and discourages initiative and experimentation. In contrast, where there are lower levels of uncertainty avoidance, education is seen as a voyage of discovery where the unfamiliar is not always to be feared. This country's suppression of inquiry in favour of instruction presents a cultural barrier to TQM's attempt to encourage individual engagement, originality and independent thinking.

Third, it has been established that Saudi Arabia is a more 'feminine' society in Hofstede's terms. In such a society academic failure is not thought of as a threat and does not attract much attention; instead teachers praise less able students in order to encourage them to

progress. The system stresses social adaptation and ‘modesty’ rather than emphasising results.

In TQM the performance of individuals or groups is rewarded and recognised on the basis of metric related factors and it is not assumed that familial links play a role; such benchmarking against unknown parties, who are therefore to be considered untrustworthy, is therefore foreign to Saudi Arabian culture.

While the collectivism of Saudi Arabia culture aligns well with the group and teamwork aspects of the TQM philosophy, its collectivist practices, embedding nepotism and favouritism, are also set against the value of measuring and assessing objectively using factual measures of performance.

Saudi’s high uncertainty avoidance implies that Saudi management has allow tolerance to ambiguity and dealing with unknowns. Therefore, the fact that TQM stresses forward planning, research and comparative analysis and the need for management to communicate their vision clearly should ideally match the Saudi need for clarity. However, in practice Management prefer guesswork and the high Power Distance and collectivism conflict with using well-grounded data analysis for planning and decisions.

However, Saudi managers prefer guesswork to grounded data analysis, maybe a puzzling preference in a country which dislikes uncertainty. They should instead opt for TQM’s forward planning, research and comparative analysis and should clearly pass on their vision in the organisation. Despite maintaining power distance and collectivism, they should make sure that all members of the organisation are aware of the roles they need to play.

To sum up, the cultural implications of Saudi culture imply that uncertainty avoidance, the existence of a clear hierarchy, power distance, collectivism and a high value on feminine as opposed to masculine values are inherent characteristics. Islam also has a significant organisational effect, resulting in the segregation of the sexes and restricting communication between men and women.

These implications highlight the presence of several major obstacles in the traditional attitudes and behaviours that would have to be steadily torn down and replaced by a new

organisational culture and value system with strong leadership and with mechanisms to support the development of skills.

Thus, the implications confirm the published research conclusions that it is essential to carry out a review of the influence of culture on organisational behaviour before suggesting any large-scale changes in management practices. The greater the impact of any recommended changes in relation to the values and behaviours with existing norms and behaviour, the more probably employees have negative perceptions and the more strongly they resist any changes. Any change initiative then almost certainly be weakened or impeded by obstacles linked to these areas, which undermine the readiness for change and the intervention itself.

The significance of the scale of the change required by the intervention of the change on the culture influence the selection of the most appropriate change strategy. In the case of the Ministry of Education in SA, TQM was chosen because it combines aspects of both the reengineering and the learning organisation. It is the most successful in situations where either the needed change is not urgent or immediate, or where great change is needed which take some time but it is not feasible to allow the existing state of affairs to change organically over an indefinite period.

However, the success of the selected strategy or intervention also depends on preparation to promote readiness for change in the organisation, without which the change initiative most likely be hindered or overcome by resistance.

Following the strategy, Lewin advocates that the plan for managing the change should consider a three-stage process. Furthermore, the Burke-Litwin model posits 12 interrelated factors that influence the change process and the level of performance in changing, which both need to be continuously assessed.

The next chapter reviews the published literature on the development of Total Quality Management, the principles and the concepts associated with TQM, including its application in relation to awards.

3 Total Quality Management

The Ministry of Education in SA selected TQM as their preferred method of change management to facilitate the transformation to a knowledge-based economy where the education system be the major cornerstone.

Therefore, this chapter presents the TQM Principles, a description of some of the TQM tools and techniques/models of implementation and a brief introduction to Improvement Awards. The origins and history of the development of TQM, the related concepts and the influence of the TQM gurus, namely, Deming, Feigenbaum, Juran, Ishikawa and Crosby are presented in more detail in Appendix B. The chapter is divided into 4 sections.

Section (3. 1): TQM Principles

Section (3. 2): Concepts of Total Quality Management

Section (3. 3): TQM Tools and Techniques

Section (3. 4): Quality Awards Frameworks

3.1 TQM Principles

The TQM principles vary according to the philosophy of the particular ‘quality guru’. Some focus on customer satisfaction, some on continuous improvement and others on avoiding mistakes (Haijan, 1994). Examples of these include Deming’s 14 principles, Crosby’s 14 steps, Juran’s seven steps and Ishikawa’s ten principles, which are described in Appendix B.

Quality assurance is a preventative process, not a corrective one. The aim is to ensure that the products have the quality needed to fulfil the predetermined specifications and requirements. Many systems assume that people are the cause of mistakes; however most mistakes can be traced back to faulty systems and processes. Thus it is possible to identify and eliminate the root causes of mistakes and to stop them from recurring by changing the work process (Ahmed, 2003).

There are three main mechanisms in quality management which ensure the absence of faulty products:

1. Mistakes should not be allowed to occur;

2. If mistakes cannot be completely prevented, they should be detected as soon as possible by means of inspection at source or at the time of the next operation so that they do not pass further down the value-added chain.

3. If mistakes occur again, production should be halted until the process is corrected so that no more defective items are produced ('stop in time') (Humood, 2000).

It is however difficult to implement this third mechanism in schools, since learning is a continuous process which cannot simply be stopped to prevent more mistakes from occurring.

In view of the disagreement between professionals and academics on the principles of TQM, it would seem reasonable to conduct a 'survey' and use the elements of TQM which are most frequently cited by these authorities.

From an examination of the writings of the three best-known TQM gurus, Deming, Juran and Crosby, it can be seen that TQM principles involve:

1. Customer focus, emphasising the customer-supplier relationship, both internal and external;

2. The involvement and commitment of everyone, particularly managers, regarding quality improvement;

3. The fundamental importance of training and education;

4. The use of teams and teamwork;

5. The added value that each job must create;

6. Recognition that quality improvement can come only from planned management action;

7. Appropriate tools and techniques;

8. Goal-setting, measurement, feedback and rewards for all processes in the organisation;

9. Continuous improvement as a philosophy;

10. Change in the organisational culture;

11. The introduction of quality principles into product and service design (Flood, 1993).

For educationalists, Langford and Cleary (1995) adapted Deming's 14 points and produced the Modified Deming Points for Continuous Improvement to Education:

1. Create constancy of purpose in improving students and service. Strive to create the best quality students who are able to improve all forms of processes and play meaningful roles in society;
2. Adopt the new philosophy. Educational management must take up the challenge, take on its responsibilities and take the lead in changing;
3. Work to put an end to grading and the damage done by rating people;
4. Stop dependence on testing to achieve quality. Dispense with the need for large-scale inspections (standardised achievement tests, minimum graduation exams etc.) by offering learning experiences which lead to quality performance;
5. Cooperate with the educational institutions that the students come from. Reduce the total cost of education by improving the relationships with student sources and the quality of students entering the system. Students starting in high school provide an opportunity to build long-lasting relationships of loyalty and trust which benefit the students;
6. Improve constantly and permanently the system of student improvement and service so as to improve quality and productivity;
7. Introduce education and training on-the-job for students, teachers, classified staff and administrators;
8. Institute leadership. Supervisors should aim to help people use machines, gadgets and materials to carry out better quality work;
9. Eliminate fear so that everyone works more effectively for the school system. Create an environment which encourages people to express themselves freely;
10. Remove barriers between departments. Teaching and administrative staff must work as a team together with staff in special education, accounting, food services, curriculum development and development and research. Create strategies to encourage cooperation between groups and individuals;
11. Abolish slogans, exhortations and targets for teachers and students which demand perfect performance and high levels of productivity. Exhortations

foster adversarial relationships. Most cases of low quality and low productivity are due to the system and therefore cannot be controlled by teachers and students;

12. Abolish work standards (quotas) for teachers and students (for example, having to raise test scores by 10% or reduce dropout levels by 15%). Substitute leadership;
13. Break down barriers that take away the right to pride and joy in workmanship among students, teachers and management (principals, superintendents and central office support staff). All educational managers must be responsible for quality, not quantity;
14. Bring in a vigorous programme of education and self-improvement for everybody. Everyone should be set to work to make the transformation and should take responsibility for it.

3.2 Concepts of Total Quality Management

The figure below shows the eight main components of TQM.

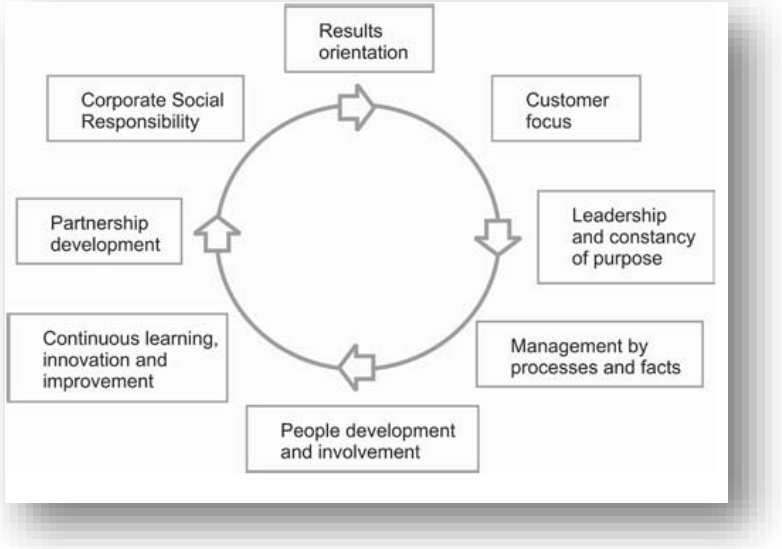

Figure 3-1: The eight basic concepts of excellence
(Michalska, 2008)

3.3 TQM Tools and Techniques

The literature on TQM organises its elements into two dimensions: ‘hard’ and ‘soft’. The ‘hard’ dimension is the management system (leadership, planning, human

resources, etc.) and the ‘soft’ is the associated problem resolution with others and decision making that must arise from the “hard” technical information system (TQM tools and techniques). This indicates that TQM involves more than certain critical factors; it also involves other mechanisms, for example, tools and techniques for quality improvement. Indeed tools and techniques are essential in supporting and developing the quality improvement process so that quality problems in all organisations can be recognised and remedied (Madi Bin Abdullah and Taríb, 2012).

Continuous improvement in management processes is at the root of TQM. This means that management must decide on the particular tools and techniques which bring this improvement about (Tarí and Sabater, 2004).

These tools can be broadly divided into two categories: planning tools such as Quality Function Deployment (QFD), concurrent engineering and the “new seven” management and planning tools, together with tools for quality improvement such as the Deming cycle, tools for data analysis and benchmarking.

3.3.1 **Tools for quality planning**

In planning for products and services and the systems which be used to produce them, the needs and expectations of customers must be the primary consideration. So as to meet these needs and expectations, organisations can use various tools to focus on the requirements of both internal and external customers. (Kahraman, Ertay and Büyüközkan, 2006). QFD is one such tool that helps guarantee that customer requirements are fulfilled. According to Lam and Zhao (1998), many organisations have made good use of QFD in designing their products or services. In addition, the concept of concurrent reengineering implies that all functions play an important role in delivering a product that responds to customers’ changing needs. (Dean and Evans, 1994). Recent tools such as the Affinity Diagram, Relations Diagram, Tree Diagram, Prioritisation matrices, Activity network Diagram, Matrix Diagram and Process Decision Programme Chart help to tackle problems when formulating strategic plans and organising and overseeing large, multifaceted projects (Dean and Evans, 1994; Anjard, 1995).

3.3.2 Tools for quality improvement

It is vital for process improvement to take place. In order to achieve continuous quality improvement, systematic tools such as the Deming cycle and tools for data analysis and benchmarking must be used.

3.3.2.1 The Deming Cycle

Deming introduced the cycle of 'Plan, Do, Check (or Study), Act' in the 1950s. This cycle is sometimes referred to as the Shewhart, or the PDCA cycle. It is the basic TQM process which is used to improve a measurable system (Anjard, 1995). The steps of the Deming cycle are as follows:

Step 1- **Plan** (P): Here data are gathered to create a plan showing what must be achieved in a particular period of time; based on this, the actions needed to implement this plan are mapped out.

Step 2- **Do** (D): At this stage, following the previous step, actions are taken which further the goals and strategies that have been formulated.

Step 3- **Check** (C) (or Study): The results of the actions which have been taken must be examined to ensure that there is a link between the plan and what was actually accomplished.

Step 4- **Act** (A): The plan is modified to result in greater customer satisfaction and to repeat the actions which have achieved the greatest success. The cycle is repeated in order to accomplish continuous improvement (Gitlow and Gitlow, 1987; Spengler, Stanton and Rowlands, 1999). Ibach (2009) holds that staff start to sympathise with requests from constituents for improved student performance and understand that the PDSA cycle can be used to improve the students' educational performance. For this reason, teachers may introduce PDSA into their classrooms both to improve their own performance and to empower students' learning. When action research in the form of PDSA is used to direct the way that the classroom functions, this joins up with strategic learning goals and what results is a constructivist classroom. There must be a clear association with goals before staff put elements of PDSA into practice.

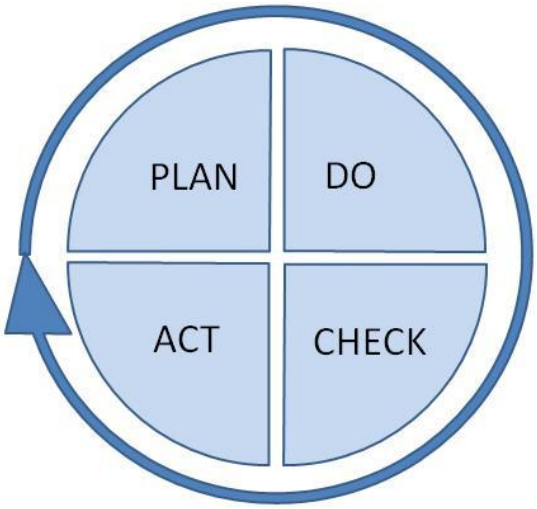

Figure 3-2: The Deming cycle
(Anjard, 1995).

3.3.3 **Tools for data collection and analysis**

Seven tools are used widely to collect, analyse and interpret data to make it easier to solve problems with quality and bring about continuous improvement (Spengler, Stanton and Rowlands, 1999; Mach and Guaqueta, 2001; Bamford and Greatbanks, 2005). They are as follows:

Flow charts: used to visualise operations. They help the planning process and in coordinating the responsibilities of various different areas. *Check sheets:* used to gather data on problems, job assignments, completed tasks and so on. They are suitable for recording direct observations and for gathering facts. *Histograms:* used to graphically represent variation in a set of data. These help to reveal useful information about the variability in a process. *Pareto analysis:* allows the most significant characteristics of an event to be distinguished from others which are less significant. The attributed data collected in check sheets is always used for this method of analysis. It is helpful in recognising those opportunities for improvement that have the greatest potential. *Fishbone (Cause-and-effect) Diagrams:* graphically outline a chain of causes and effects. *Scatter Diagrams:* show how any two characteristics are related to each other. Finally, *Control charts:* allow variations to be studied so as to distinguish between common and special sources of variation.

3.3.4 **Benchmarking**

Benchmarking and performance evaluation are features of total quality management and may be found in recent management practices (Chen, 2002). Benchmarking is held to be a useful means of comparing an organisation's strategies and performance with best-in-class organisations which have excellent practice, from the same or other sectors. The aim is to recognise which best practices an organisation should apply in order to enhance its performance (Freytag and Hollensen, 2001).

The idea of benchmarking first emerged in the 1970s and 1980s in organisations such as Rank Xerox in California. They used it to see how their own products and processes measured up to established industry norms or 'best practice' standards in other organisations (Chalkley and Craig, 2000; Wheelen and Hunger, 2004). By the end of the 1990s, benchmarking was found in routine use in 500 organisations, a staggering rise in the number of manufacturers who had turned to this tool (Kumar and Chandra, 2001).

Al-Khateeb and Al-Khateeb (2004) describe benchmarking as a business tool for quality improvement. According to Lema and Price (1995, p. 29) benchmarking is:

"*A systematic and continuous measurement process; a process of continuously measuring and comparing an organisation's business process against business leaders anywhere in the world to gain information which help the organisation to take action to improve its performance*."

Benchmarking has as its most important goal the development of products and processes which come closer to customer requirements (Freytag and Hollensen, 2001) and the procuring of competitive advantage by identifying best practices and implementing them so as to enhance the organisation's performance. It also enables organisations to introduce best practices into their own operations and to learn from their own strengths and weaknesses as well as those of other important organisations (Carpinetti and De Melo, 2002). It also allows organisations to recognise the quality gap between their products or services and those of other organisations. Furthermore it motivates employees to be constantly innovative (Curry and Kadasah, 2002) .

Many authors have broken down the benchmarking process into five steps (Dean and Evans, 1994; Drew, 1997; Beckford, 2002). These are as follows:

1. Identification of functions to be benchmarked;
2. Determination of key performance indicators to be measured;
3. Identification of in-class organisations;
4. Measurement of best-in-class organisations, making it possible to compare them with the desired organisational outcomes;
5. Making changes to produce the sort of performance that equals or outdoes the performance of best-in-class organisations.

Freytag and Hollensen (2001) and Carpinetti and De Melo (2002) divide benchmarking into its various kinds, depending on where the comparisons are made: **Internal benchmarking** for the performance of departments or units in a particular organisation. The immediate consequent advantage is that the best internal procedures can be recognised and applied in other areas of the organisation. **Competitive benchmarking,** when the performance of the organisation is compared with the performance of a direct competitor. However, the most valuable information on direct competitors is difficult to come by. **Functional benchmarking** examines a specific business function in two or more organisations in the same industry. **Generic benchmarking** compares similar procedures in organisations which do not otherwise resemble each other. It is a fairly valuable method.

Nevertheless, because some organisations do not fully understand the concept of benchmarking, they cannot use benchmarking tools correctly (Kumar and Chandra, 2001). Since each organisation has its own culture and values, a practice which may work well in one organisation may not be successful in another. Hence, it is important that organisations making use of benchmarking should adapt best practices to their own situation rather than attempting to merely copy them unmodified from another organisation. During the last few years, as education systems in many countries started to take up quality assurance practices and terms, the most recent concept to be introduced into the academic world was benchmarking (Chalkley and Craig, 2000).

3.4 Quality Awards Frameworks

3.4.1 Recognising organisational improvement awards

Quality is the basis of an organizational strategy to achieve development, growth and continuous improvement. Thus, it has become necessary to support both public and private organizations with methods that can both ensure the achievement of quality and assure customers about the level of quality, to enable these organizations to compete globally, to deliver high quality services to customers and to meet their expectations. According to Wilford (2007), the use of awards to reward and acknowledge achievement has grown rapidly in recent decades. However, there remains a debate in the quality management literature as to whether compliance with the requirements of international quality awards and recognition of the ability to achieve high standards according to awards criteria can really drive organizational improvement, development and success.

Eriksson and Hansson (2002) empirical research in Sweden concluded that organizations which obtained quality awards performed better than those which did not, however, they also found that organizations with awards were often outperformed by others in the years preceding and following the award, They suggested that quality awards enhance performance in the short term but not necessarily in the long term. According to Deming (1982), it is not enough for organization to do their best to achieve total quality; it is also essential that they understand the quality requirements which apply to them and assign the appropriate human and financial resources to meet these.

The awards provide insight into an underlying TQM frameworks and provides some practical criteria for the implementation of procedures and applications. Khoo and Tan (2003) compare several award frameworks, MBNQA with the Deming Prize, considers the different concepts of organizational culture and how these differences affect the quality management of day-to-day tasks.

Essentially the Deming Prize, is represented as the " Company-Wide Quality Control" (CWQC) model considers that the primary factors can be broken down further into a minimum of four and a maximum of 11 secondary factors. All items are of equal value. The factors and procedures underlying the (CWQC) process are specifically described

in the check-list which also identifies techniques and approaches explicitly. It is basically prescriptive; nevertheless it is underpinned by values similar to those embodied by other models (Miguel, 2001).

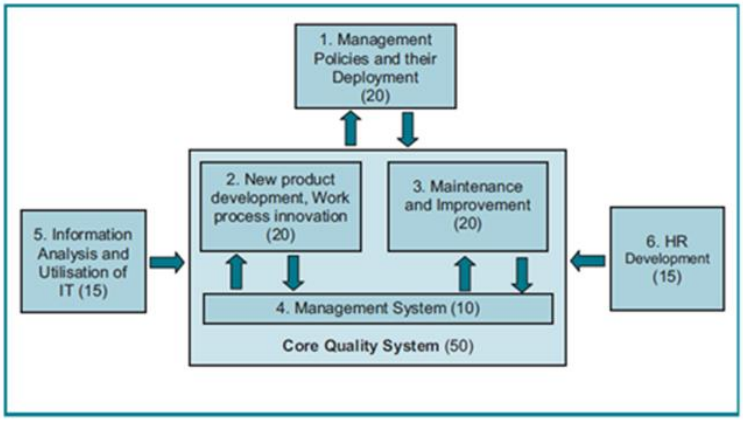

Figure 3-3: Evaluation items of basic categories under the Deming Application Prize (JUSE, 2012)

The American counterpart of the Deming Prize is the Malcolm Baldrige National Award **(MBNQA).** The objective of this was to increase the competitiveness of U.S. businesses, particularly ones in the manufacturing and services sector, and small businesses. MBNQA criteria were also formulated for health care and educational organisation in 1999, and for non-profit/government organisations in 2005 (NIST, 2013).

The criteria for the MBNQA have been modified every year according the changing global environment which requires QM to be updated. The model's criteria for performance excellence has seven categories: leadership, strategic planning, customer focus, measurement, analysis, and knowledge management (MAKM), workforce focus, operations focus, and results. Prybutok and Cutshall (2004) have observed that these seven categories can be divided into four basic elements: driver, system, measures of progress and goal.

The NIST calculates that the criteria of the Baldrige model have probably been the basis of the self-assessments of thousands of organisations, showing its popularity as a tool. Because it allows organisations to identify its quality system and choose customer-driven quality objectives, self-assessment is essential (Reimann, 1989). Vokurka, Stading and Brazeal (2000) consider that as well as providing a set of criteria for

companies who are applying for the award, the MBNQA also offers guidance for those wishing to put into practice proven performance excellence initiatives.

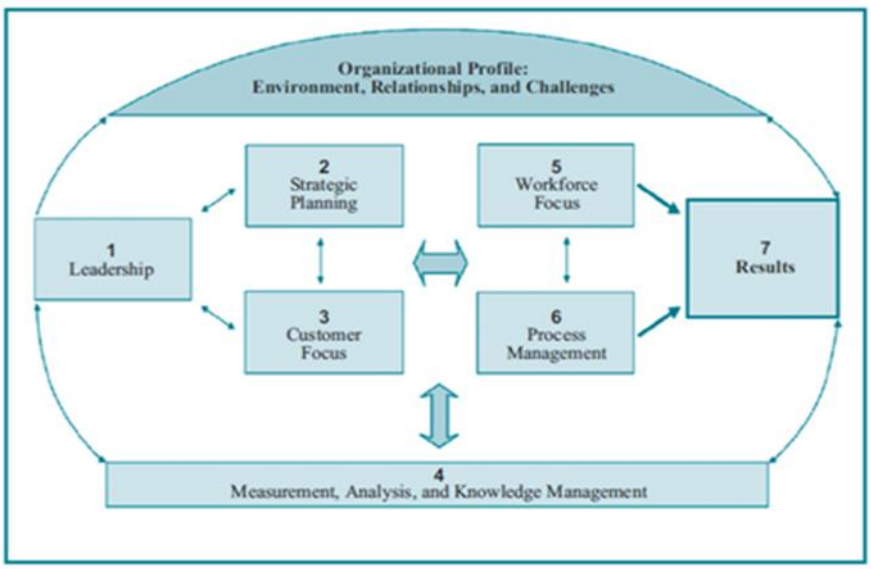

Figure 3-4: Framework of the Malcom Baldrige National Quality Award
(NIST, 2013)

3.4.2 **Recognising excellence in organisational business models**

A further framework for consideration focuses on the differing components needed to achieve organisational excellence. Thus organisational excellence is a management philosophy, a collection of principles, approaches and criteria which can be used to achieve the optimum outcomes in the medium and long term in support of future sustainable development. It is important to remember this when studying and applying models of organisational excellence. Excellence is mostly dependent on 'soft factors' (people, culture, values) and these cannot be truly taken into account by a standard model. Managers can use business excellence models as powerful tools which allow them to comprehend which strategies and supported approaches should be implemented and what can be achieved through them.

The European Foundation for Quality Management Award (EFQM)

The European Foundation for Quality Management (EFQM) was set up in 1998 by 14 of the most important European companies.

The EQA is designed to help Western European companies play a more prominent role in the world market by encouraging the acceptance of quality as a strategy for global

competitive advantage and by promoting and supporting the development of quality improvement activities. Additionally it aims to formally acknowledge organisations that are leading the way in implementing total quality and to inspire others to emulate them.

There are nine categories in the award assessment criteria which can be further broken down into two groups: Enablers and Results. The Enablers subcategory has five criteria – leadership; people; strategy, partnership and resources; and processes, products and services – and four in the Results group – people; customers; society; and key performance. The Enabler criteria refer to "what an organisation does" and the Results criteria to "what an organisation achieves". The Enablers cause the Results, while feedback from the Results is used to develop the Enablers (EFQM, 2013) (see Figure 3-5). Hides, Davies and Jackson (2004) consider that an organisation should be clear about what it wants to achieve before it decides on a strategy to implement the model.

The EFQM criteria have been widely used in the public sector, especially in institutions of higher education (George, Cooper and Douglas, 2003). An important reason for this has been the recent demands on public institutions to meet customers' needs by continuously improving their services (Hides, Davies and Jackson, 2004).

Porter and Tanner (1998) consider the EFQM excellence model to be an important diagnostic tool which offers stakeholders a learning opportunity to examine strengths and recognise improvement opportunities. In addition, Oakland (2001) puts forward the idea that the model could allow stakeholders the time to recognise 'gaps' between best practice criteria and actual performance which would be a balanced, sound basis for assessing performance and progress in the direction of specific targets and goals (Jacobs and Suckling, 2007).

The assessment uses a 1,000-point scale. The model acknowledges the essential role that management plays in developing the structures and infrastructures which the organisation needs in order to reach its goals for output and outcome. Most practitioners and academics consider management leadership, together with the development of human resources, process capability and planning, to be key in driving quality. When assessing the results, the EQA does not use financial results as the only measure of

performance, but takes into consideration measures in three other areas. The model takes for granted the causal relationship between output (financial results), outcomes (customer satisfaction, acceptance by society) and employee satisfaction. This assumption is logically attractive and there is indeed some empirical evidence to support it.

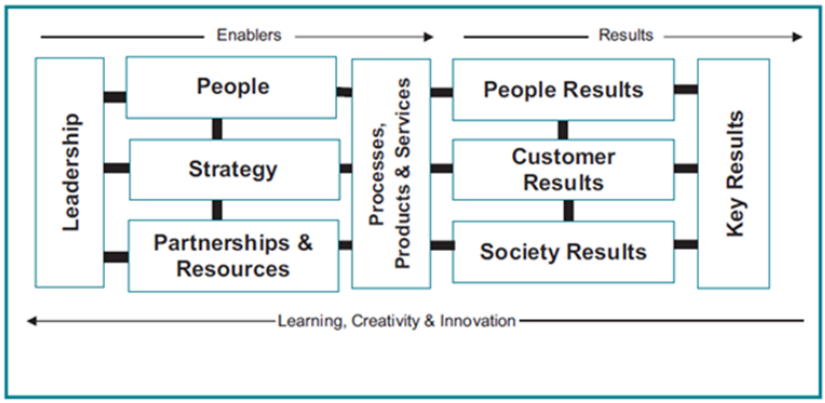

Figure 3-5: Framework of the EFQM
(EFQM, 2013)

3.4.3 **The BS5750/ISO 9000 series**

In 1979 the British Standards Institute (BSI), the British national standards body, produced what was in effect the first commercial quality standard series. This was made public as the BS5750 series of standards (Wealleans, 2005). The BS5750 went on to become the basis of quality assessment in the UK and was used to create quality systems in many other countries including the USA where the American National Standards Institute (ANSI – the national standards body) introduced the ANSI 90 series of quality standards (Thonhauser, 2008).

The International Organisation for Standardisation released its first set of quality standards, the *ISO 9000:1987*, in 1987. This was adopted by both the BSI in the UK and by the European Committee for Standardisation Commission (Bevans-Gonzales and Nair, 2004). The ISO is based in Geneva, Switzerland and is made up of the national standards bodies of 90 countries. It is not affiliated to any federal government, the European Union (EU) or the United Nations, but is a specialised international agency for standardisation (Goetsch and Davis, 2002). The national standards body in the USA is the American National Standards Institute (ANSI) and in the UK it is the British Standards Institute (BSI) (Thonhauser, 2008).

The term ‘quality management system standards’ can be used to describe a set of internationally created written guidelines which make up a nonspecific quality management system and which can be applied to any organisation, no matter what product or service it provides (Kantner and Kanter, 2000). The ISO9000 is one such system.

The ISO 9000 aims to make available a quality framework without changing an organisation’s operations. It acts as a quality management system that is made up of a series of non-specific quality standards which can be implemented in the system. These criteria can be used as a solid basis to continuously improve quality without impacting on the organisation’s functions (Harding, Tesolowski and Simmons, 2000).

The ISO 9000 has been regularly amended by user feedback since it was introduced in 1978. In this way it has been kept current with advances in management practices (Hoyle, 2009). It was first revised in 1994 (ISO 9000:1994), when it incorporated some minor adjustments and shed light on some areas of the original version. However the ISO 9000:1994 was criticised for not treating TQM practices in a thorough and coherent way and for focusing too much on industry (Zhu, 1999; Martínez-Costa et al., 2009).

In response to these criticisms from users, the ISO was revised in 2000 to counteract these failings (ISO, 9000:2000). Thus the ISO 9000 now has eight core quality management principles, demands that organisations take a process-based approach, contains new concepts on continuous improvement and stresses leadership and management commitment to a greater extent; all these amendments are essential for TQM (Gamboa and Melão, 2012).

To apply these standards, an organisation must first create four levels of documentation, a quality manual, procedures and forms, instructions and supporting information and then conform to these. When the organisation has implemented the documentation, a third-party audit of the documents and the organisation’s performance is carried out, where the performance and documentation are compared to the ISO 9000 standards. The organisation receives its certification (registration) if the audit is successful (Harding, Tesolowski and Simmons, 2000).

The advantage of applying ISO 9000 standards is that companies can follow specific well-documented procedures when making and/or delivering their products or services which guarantee that the company's products or services conform to customer specifications. It can therefore be claimed that their goal is to ensure that quality is consistent, but not that the products or services of a company necessarily improve (Tsiotras and Gotzamani, 1996).

Carlsson and Carlsson (1996) consider that the reputation of an organisation and its image among customers can be enhanced by ISO 9000 certification. Additionally Escanciano, Fernández and Vázquez (2001) describe ISO 9000 as a vital first step in the direction of competitiveness and excellence. Although the ISO 9000 series standards have been internationally recognised and accepted, Singels, Ruel and Van de Water (2001, p. 62) claim that '*ISO 9000 certification gives no guarantee that the quality or service of an organisation is better than the quality of other organisations. Thus, ISO 9000 certified organisations do not automatically have a good product quality'*.

The ISO 9000 series of standards was first applied in industrial settings and then modified to suit service organisations. By the end of 2008, 40 percent all ISO 9001 certificates were issued for the service sector (ISO, 2009). Furthermore, as Thonhauser and Passmore (2006) observe, educational institutes have recently been adopting ISO 9000.

Most academic work on ISO 9000 in education concentrates on the advantages and disadvantages of the standards. Furthermore, studies have been made on ISO 9000 in educational institutes in conjunction with other quality management systems such as Continuous Quality Improvement (CQA), the Business Excellence Model (BEM), Total Quality Management (TQM), or in relation to ideas such as 'sense-making' or 'managerialism' (Thonhauser, 2008).

According to Bowring-Carr and West-Burnham (1994), it is not clear whether ISO 9000 implementation brings sufficient benefits for a school to make it worth the workload. However, they consider that it can contribute meaningfully when a total quality strategy is being implemented.

Corbett and Kirsch (2001, p. 328) state that 'surprisingly, the standard [ISO 9000] has not been the subject of sustained scholarly analysis'. In his investigation of ISO 9000 in educational and training institutions, however, Berghe (1997, p. 89) observes that '*ISO 9000 is not an appropriate goal for any organisation in any circumstance'*. But still, Stebbing (1990) states, in connection with the application of the ISO standard in a British university, 'there is no doubt that both TQM and ISO 9000 series can be effectively applied to educational organisations'. Furthermore, Bowring-Carr and West-Burnham (1994) and Doherty (1997) consider that it is meaningful to apply ISO 9000 in the educational context, although it involves a great deal of work.

But Harris and Purdy (1997) distinguish between TQM and ISO 9000, stating that the main aim of TQM is 'improvement'. In contrast to ISO 9000, it applies no minimum standard which must be achieved. Because the demands of the environment are constantly changing and the search for improvement opportunities is unending, the TQM process continues indefinitely. While ISO 9000 is mostly limited to purchasing, sales and production functions and is concerned with the end-product or service, TQM examines every stage of the production or service delivery process.

ISO 9000 and BS5750 both offer quality certification which concentrates on consistency in the production, not quality, which is assessed only in relation to stakeholder satisfaction. In addition both focus on assessing organisations' progress in constantly improving themselves. The Quality Management System offers discipline and external assessment leading to third party accreditation and a score for quality. In contrast TQM does more than establish a quality system; moreover, it does not always involve applying external standards (Sallis, 1993).

3.4.4 **Developing a quality award in the Arab world**

In recent decades, many Arab countries, particularly Saudi Arabia, Jordan and the United Arab Emirates, have demonstrated their ability to strengthen their economic performance by establishing very strong reputations for delivering quality services, based on economic reforms designed both to enhance investment and to attract new consumers (Hanouz and Yousef, 2007). However, while economic and business reforms may be useful in attracting new investors, it is important to recognise that what is needed to put Arab countries in an advanced position in the very competitive

international market is to enhance the ability of existing organisations to deliver services and/or products of competitive quality.

There is wide agreement amongst researchers that market competition is stronger than ever before, because of globalization and the rapid development of business technology (Hanouz and Yousef, 2007). Hence, Arab countries have to be very well prepared to survive such strong competition, which according to Rawabdeh (2008), requires strong and effective quality award programmes to be adopted. Saudi Arabia already has an established scheme, the King Abdul-Aziz Quality Award, while Jordan launched the King Abdullah II Award for Excellence (KAIIAE) in 2000. Each award is considered to represent the highest level of quality recognition in its country (*King Abdul Aziz Quality Award (KAQA)*, no date; Rawabdeh, 2008).

Effectively and successfully developing such award schemes is thus an essential step if Arab organizations are to compete at an international level. Savage (2005) identifies a number of issues which need to be addressed first. These include identifying the need for an award and the achievements which are to be made by developing it. There is also a need to publicize good quality performers. Self-assessment should be supported through the use of the quality award, because it is an essential element of organizational success and development. The structure, design and application of each award must take account of organizational culture and of the need to enhance skills and improve knowledge across the management process. Another important issue which must be discussed when developing a successful and effective quality award is the differentiation between small and large organizations, since they have different levels of human and financial resources. In addition, developers should distinguish between the private and public sectors in order for the award to be fully effective and inclusive of all organizations, whether for-profit or non-profit ones.

In addition to these issues which need to be addressed in developing quality awards in Arab countries, there are many other factors which also contribute strongly to successful quality policies. For instance, a major aspect of a successful quality process is establishing and maintaining effective communication during and after the implementation of the quality process, in order to work towards achieving excellent performance. This communication must occur in and between all levels of the

organization: between managers and employees, among managers and among employees (Yusuf, Gunasekaran and Dan, 2007). It is particularly significant because traditional business culture in the Arab region does not favour smooth and easy communication between employees and managers, mainly because of the organisational leadership and management style, which is predominantly dictatorial, giving employees no effective participation in the quality process. Moreover, the separation between male and female employees in the workplace, especially in the KSA, can also be an obstacle to developing effective quality awards, because close teamwork, flexibility and free communication among employees are essential to the achievement of continuous improvement.

3.5 Summary

This chapter discussed the principles embedded in Total Quality Management, its tools and technique and the awards related to such concepts.

The TQM has been recognised as an important process for improving the quality of organisation services. Whilst TQM has been widely implemented, it has more than one definition and several different factors and elements contribute to its successful implementation. This study focuses on the TQM principles that most authors agree with.

Additionally, there is still no clearly defined implementation framework for TQM, although EFQM and several awards provide practitioners with an approach. Quality Awards provide a basis for TQM frameworks. Nonetheless there are several award mechanisms, each with its own specific orientation, whether it be to recognise improvement or define the framework for excellence. These frameworks provide direction at a strategic level but are generalised and do not consider the cultural context and the level at which they are interpreted depend on the initial level of maturity in the organisation. The models do not provide a practical comprehensive approach that assists organisations to redesign their processes and set graduated levels of standards that enable the workers to gradually develop their capability, capacity and readiness. Only the BS provide a more detailed approach that encourages standards of consistency. However, whilst BS includes TQM, their emphasis is on the consistency of operational

processes and not on transforming and embedding quality standards in the workforce behaviour and practices.

The next chapter considers the published works on TQM in the education sector and identifies the obstacles and critical success factors that promote or inhibit a successful and sustainable implementation; it assesses how these may relate to the findings on the social culture of Saudi Arabia.

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4 TQM in Education

The previous chapter set out a general understanding of TQM. This chapter considers TQM in relation to education in order to understand the conceptualization and application of TQM there, what benefits result from implementing TQM, the concerns over implementing it in education and its role in Arabic education.

Chapter 6 reports on the process and criteria that collated 132 publications and finally chose 60 publications for detailed review. This focused the review of papers on TQM in education on two aspects of TQM implementation – its obstacles and critical success factors (CSFs), for understanding the nature of the relationship between the hard and soft aspects of CSFs in the successful implementation of TQM. The following sections are to be found below.

Section (4. 1): TQM in the Education Context

Section (4. 2): TQM in Arabic Education

Section (4. 3): TQM Terminology transferred from industries to education

Section (4. 4): The benefits of TQM in education

Section (4. 5): Overview of obstacles to TQM implementation in education

Section (4. 6): The CSFs of TQM in education

Section (4. 7): Summary

4.1 TQM in the education Context

4.1.1 The need for TQM in education

TQM has proved to be of great use in manufacturing companies and service organisations have also begun to implement it. TQM can be a valuable tool in schools too, although it must be amended to take into account some of the distinctive elements which come from considering education per se, as opposed to education as a service industry with no visible, tangible ‘product’.

Several authorities (Deming, 1986; Stensaasen, 1995; Harris, 2005; Middlewood, 2010) have looked at the use of quality criteria in education and concluded that they are essential for raising its standards. TQM can assist a school in its efforts to provide a

better service to its primary customers – students and employers – and other stakeholders.

The available literature shows increasing interest in the application of TQM in the education sector, for a broad range of reasons (Temponi, 2005; Ngware, Wamukuru and Odebero, 2006; Thakkar, Deshmukh and Shastree, 2006), some of which are listed below:

- Pressure from industry for academic standards to be upgraded in light of changes in technology;
- Government funded schemes for research and teaching in the area of quality;
- Less funding available for research and teaching, which means that only the more reputable institutions have a good chance of attracting such funding;
- Greater competition between private and government academic institutions.

Private schools have been a source of competition. So as to compete with them, public schools must find new ways of dealing with the challenges which the new millennium has brought. One of the main methods of helping them to improve their standards and keep their services relevant is to introduce TQM or elements of continuous improvement (Saleki et al., 2012). Indeed, the function of schooling is very important for the quality-conscious era in which we live. Quality in education is what makes learning a pleasure (Köksal, 2011) and it can assist a school in its efforts to provide a better service to its students and employers, and other stakeholders (Al-Tarawneh and Mubaslat, 2011). According to Köksal (2011), school leaders and teachers should apply quality practices in their work with students, because creating a quality environment is the main and primary mission of all adults who prepare the coming generations for success.

TQM's focus on continuous improvement allows it to fulfil the requirement for accountability which is a feature of educational reform (Al-Tarawneh and Mubaslat, 2011). This contention is, however, debatable, since no writer clearly accepts or rejects it and there is ongoing debate about whether TQM fits in the education sector at all. In any case, "TQM in education is not a panacea" (Sitkin, Sutcliffe and Schroeder, 1994; Sallis, 2002; Köksal, 2011). It is not a magic wand to eliminate problems from the school or from the classroom. It requires time and effort. Once TQM is an essential part

of the school or classroom culture, however, problems seem more manageable; more students take greater responsibility for their learning (Köksal, 2011).

Students, parents, administrators and governments all desire "good quality education," but the question remains '**what does high quality education mean?'**. The selected papers were studied to examine the concepts of quality in the education sector.

4.1.2 **The concept of quality in education**

It is not easy to define 'quality of education' in concrete terms nor is it simple to say when the service that a school provides is 'good enough' (Al-Tarawneh and Mubaslat, 2011; Ahmed and Siddiek, 2012). Some scholars, such as Horsburgh (1998), consider that using the concept of quality in education is itself ambiguous and others, such as Zabadi (2013), believe that it is interpreted differently depending on:

- The understanding of different various stakeholders in education; individual schools' quality standards; requirements of the labour market; requirements of the government and society;
- The terms of reference: inputs, processes, outputs, objectives, missions, etc.;
- The features and qualities of the academic world which are considered significant.
- The specific juncture in the history of education.

The concept of quality in education is multifaceted. Horsburgh (1998), Zabadi (2013), Agarwal et al., (2011) all describe quality in different terms.

- **Quality as high standards**: quality in education can first be considered to be the maintenance of a certain academic level, as is the case for leading universities and institutions such as Harvard, Vancouver, Tokyo, Oxford and Cambridge.

- **Quality as excellence**: this includes excellence over the educational experience as a whole, including the quality of the student's life and the breadth and modes of learning provided.

- **Quality as fitness for purpose**: where the points of view of various clients (students, academic staff, administrative staff, governing board etc.) are taken into consideration and so is the way in which the service meets their needs, requirements or desires. In

addition, Zabadi (2013) defines quality in terms of an institution's ability to fulfil its mission or to provide a programme of study which does so.

- **Quality as transformation**: here the focus is on the learners, positing education as the transformation of a student who is not a passive receiver but an active participant and who be equipped with the skills, knowledge and attitudes needed to live and work successfully in the knowledge society.

- **Quality as threshold**: here quality is defined in terms of the specific norms and criteria which should apply to an institution.

- **Quality as value for money**: the government gauges the quality of education in terms of efficiency and cost-effectiveness.

- **Quality as enhancement or improvement**: This stresses the quest for continuous improvement and is based on the belief that attaining quality is fundamental to the academic ethos and that academics can best define quality with reference to a specific point in time.

According to Olimat (2004) and Hassan, Fan and Johnstone (2014), quality in schools should be comprehensive. This is the case in three areas:

- It should encompass all the processes in the school, not merely teaching;
- It includes all jobs, not only those which involve teaching students;
- Each individual should be responsible for quality in his or her work.

Sallis (2002) considers quality in technical features to be a largely relative concept; it is not a characteristic of a product or service but rather something which describes it. Here quality is being measured against criteria and is not absolute, but rather a means which allows the end product to be assessed as measuring or not measuring up to some standard.

4.1.3 Definition of TQM in education

Although there is no universally accepted definition of quality management, there have been attempts to arrive at a description of the ideal in total quality management. Examples from the 60 selected papers include:

Table 4-1: Definition of TQM in education

Authors	Definition of Total Quality Management (TQM) in Education
(Gharib and Alfarah, 2012)	TQM is an effective style of management. Its foundation lies in problem-solving, error-detection and tackling issues. It also takes into consideration the interests of the educators, teachers, administrators and students.
(Zaid, 2002)	TQM involves all functions and activities of the organisation and is not limited to providing services but is involved in their delivery, being an administrative process that aims to cater for the needs of both the labour market and students. It therefore provides a far-reaching, homogeneous means of developing performance that encompasses all aspects of the provision of education. Thus, student satisfaction and confidence should be improved. This should improve educational institutions both nationally and globally.
(Tayeb, 2007)	TQM provides a unified approach that involves all branches and layers of an organisation to allow employees and teams to meet the needs of students and other stakeholders in the educational process. It also allows for the best quality research and consultative educational services to be provided at a lower cost.
(Ali and Shastri, 2010)	TQM is a common element that shape the strategy of professional educational institutions as they strive to satisfy all groups of stakeholders, including parents, students, industries and society.
(Sahney, Banwet and Karunes, 2004; Sahu, Shrivastava and Shrivastava, 2013)	TQM in education is wide-ranging and encompasses the planning of quality inputs, as demonstrated by the faculty, support staff, infrastructure and current students, The quality of processes can be seen in learning and teaching activities and in the knowledge and skills of graduating students
(Ngware, Wamukuru and Odebero, 2006; Dahlgaard, Khanji and Kristensen, 2007)	Here educational culture is demonstrated by greater stakeholder satisfaction which is manifested by continual improvement and the active participation of teachers, other employees and students.
(Galavandi *et al.*, 2011)	TQM provides a means to introduce changes into the education system. It is a philosophy which provides continuous improvement and offers a battery of tools and techniques which are easily put into practice to tackle the wishes of any education system both current and future. Thus this approach to management introduces radical changes into education and has a great effect on other approaches to enhance management.
(Saleki *et al.*, 2012)	TQM is a management policy which can provide a tool which use and exploit all financial, human and technological resources of educational institutions. The main aim of TQM systems is to engage with educational agents from all levels of education, from the lowest to the highest, in relation to educational activities and goals.
(Tasar and Celik, 2011)	TQM is a management philosophy which is continually interacting with the environment; it takes into consideration the needs of the environment, balances elements which impact on the school, opens it up to change and facilitates cooperation between the teachers, students and school staff, thus ensuring good relations and using available resources effectively. It plays a tremendous role in making school principals, teachers, students and other stakeholders aware of their roles and creates an awareness of the student as customer. In other words TQM paves the way for the creation of a student customer-oriented outlook.
(Safakli and San, 2007)	TQM is a management philosophy which interacts and interconnects with the environment and continues to cater to its needs, while keeping a balance with those elements which impact on the school. In addition this philosophy is flexible; brings into harmony teachers, students and other personnel and fosters good relations. It is also a democratic, liberal, sympathetic philosophy with a broad outlook which does not promote existing conditions unthinkingly but takes rational advantage of resources.

In summary, TQM is both a philosophy and a tool. The key concepts of total quality can be defined as a set of criteria and features that include maintaining a cooperative

interconnection between the external and internal stakeholders and an environment that relies on the involvement and participation of key stakeholders in planning, processes to make the most of all the potential of all available resources to enhance the knowledge and skills of teachers and students. The TQM approach depends on management's ability to introduce radical changes and facilitate the relationships between inputs, processes and outcomes. It should set specific goals for input and continuous improvement to achieve the desired results according to the long-term plan.

4.2 TQM in Arabic Education

The results from of the 60 publications highlights a distinct trend towards the use of TQM in Asian countries (see Figure 4-1 below).

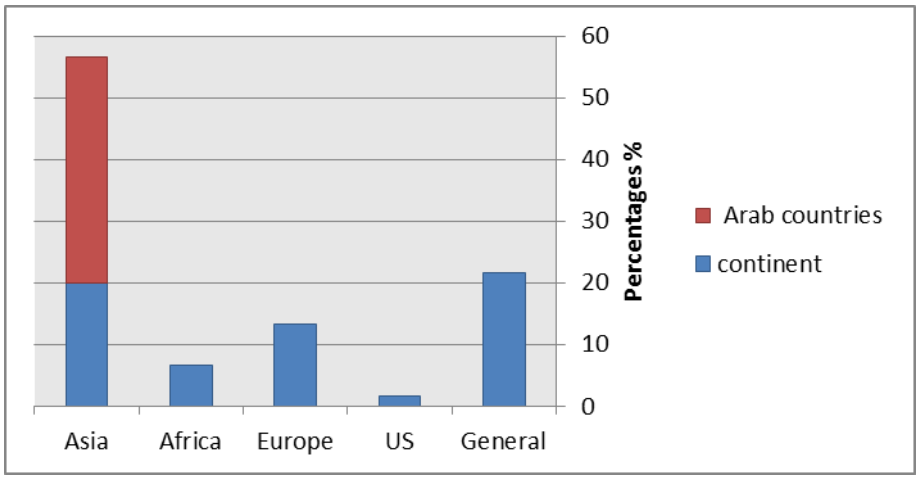


Figure 4-1: TQM in Arab education

The chart above shows that Asian countries, as studied by researchers in education, are more interested in TQM (57%) than are Europe, the US or Africa. This result is possibly due to the fact that Europe and the US became interested in TQM before the year 2000, which was the cut-off point for the 60 selected papers. Many studies of TQM implementation in the field of education have been carried out in Arabic-speaking countries (37%), such as Saudi Arabia (Alruwaili, 2013), Kuwait (Al Tasheh, 2013), Jordan (Gharib and Alfarah, 2012), Bahrain (Pineda, 2013), Libya, Qatar (Sulaiman, Manochehri and Al-Esmail, 2013) and the UAE (Soomro and Ahmad, 2012).

Culturally, education is highly respected in Asian and Arabic communities. Local educational institutions are at the forefront of this change; they now have to compete for funding and demonstrate that they can produce quality students.

It is known that qualitative changes are increasingly rapid in the Arab and international communities, adding to the difficulty for the educational institutions in their educational, training and rehabilitation work at all stages and levels of responsibility (Gharib and Alfarah, 2012), which requires them to change their traditional administration and management styles. Thus, educational institutions look to adopt modern management concepts to achieve their objectives (Zabadi, 2013).

4.3 Modifying TQM Terminology and Vocabulary for Education

Even if TQM is shown to be apply to education institutions, extra caution must still be taken in transferring concepts and practices from industry to education (Thapa, 2011).

Quality management is not a management approach easily applied to education institutions, especially because the academic culture of these organisations is quite strong and distinct. They consider themselves separate from commerce and therefore resist industrial concepts, principles and practices. This resistance begins with the "foreign" terminology. Terms such as product, client, performance or even strategy, not to mention TQM or reengineering, do not readily resonate in educational institutions (Zabadi, 2013).

Professionals in the educational institution appear to object to the use in an educational setting of TQM terms such as "customer". 'Customer' has a commercial connotation and they do not want to think of their students/children as customers, because in their view this word is linked with money transactions. Education is considered to be a "calling", which entails a future intrinsic value that cannot be monetised. So applying the concepts of "money" and "transaction" to the education of students devalues the connection. Furthermore, education is historically something gained through the support of the state, which for years was free to students. This seems to be another main reason for resistance.

4.3.1 Customers of education

According to the Wordsmyth Educational Dictionary, a customer means "one who buys goods or services; shopper, patron" and this is probably adequate in the usual commercial sense; the second broader definition is less formal and is used by academics: "one who must be dealt with" (Taiwo, 2010). Sallis (2002) describes

education as providing services, among which are the tuition and assessment of pupils and students, along with advice and guidance for them, their parents and sponsors. These 'customers' receive benefits (knowledge and skills) or services.

Deming (1986), one of the quality gurus, describes the customer as the "one who gets your work". Juran's (1988) advice was to "follow the product to see whom it impacts", observing that "anyone who is impacted is a customer". These definitions can be applied to all types of organisation, whether profit or non-profit, which deal with internal and external customers.

For quality to be achieved, customers' needs and wants must be met and then exceeded. Customers are the starting point and the basis of what is considered quality. The customers are at the heart and quality must be defined in relation to them, which means that it is essential to establish who they are before the specific needs can be identified and a customer-oriented service provided. The customers or stakeholders in a service are a varied group, especially in education. However it is important for the customers to be defined and to determine the process of so doing (Schwartzman, 1995; Spanbauer, 1995; Sallis, 2002).

A significant obstacle to the implementation of TQM programmes in educational settings is that schools have "no clear understanding of who the customers, either internal or external, are" (Conway, Mackay and Yorke, 1994; Schwartzman, 1995). Unfortunately quality management principles and methods are unable to offer much guidance, first because it is not clear that the clients in education are the consumers, second, because of the different interest groups and last, because some of the interest groups contribute financially to maintaining the education system (Sahney, Banwet and Karunes, 2004).

The description of students as the customers of educational institutions has been described as "incomplete" and is not universally accepted (Rinehart, 1993; Taiwo, 2010), because education impacts on society as a whole: "the ultimate consumers of users of education are the national and international communities" (Rinehart, 1993).

Thus, when attempting to maximize customer satisfaction, institutions feel obliged to "*stretch the standard definition of 'customer' to include all persons or organisations who are affected*" by education (Seymour, 1992, p. 48).

Despite the widespread supposition that students are the institutions' customers (Taiwo, 2010), this broader definition is consistent with Juran's description of customers as "anyone who is impacted" by an organisation's success or failure in achieving its objectives (Juran, 1992). Meirovich and Romar (2006) and is and Taylor (1999) observe that educational institutions cater to a range of customers, for example, students, parents, alumni, teachers, employers, taxpayers, governing boards, administrators, staff, research users and society overall.

Other authors have examined and refined the concept of the customer. Hoy, Bayne-Jardine and Wood (2000) describe the difference between customers and clients in education as follows:

- Customers: these are students and employers who are concerned with the actual learning and teaching which teachers provide;

- Clients: these are Local Education Authorities and central government whose concern is the quality of resources (professional competence, building, materials), both locally and centrally.

As stated previously, an organisation must first of all determine who its customers are before it can identify its needs. Customers can be either external or internal to the organisation (Taiwo, 2010):

- **Internal customers:** these are the people in the educational institution who benefit from the products or services which the other members of the organisation offer (Weinstein, 2009; Taiwo, 2010) and who have a critical stake in the success of the institution (Sallis, 2002)
- **External customers**: these can be described as "those individuals or organisations which are not part of the organisation in question but are nevertheless impacted by that organisation's activities. They are the ultimate ones we are trying to satisfy with our work" (Taiwo, 2010). These are the same

as the end users of a product or service and include educational institutions, business, industry and society (Schwartzman, 1995).

- **Customers can be both internal and external**. Thus students can be internal customers while they are a part of the learning process but become external customers when they leave the institution. They are the ultimate external customer, playing their role effectively in society.

Sallis (2002) and Conway, Mackay and Yorke (1994) divide customers in education into:

- **Primary customers**: those who receive the service directly;
- **Secondary customers:** those with a direct stake in the education of a specific individual or in a specific institution, for example parents, governors, or employers sponsoring vocational students;
- **Tertiary customers**: those with an indirect though critical stake in education, for example, future employers (ex-students), government, society overall.

However, for Kanji, Malek and Tambi (1999) the educator (as employee) is the primary internal customer and the students (as educational partners) are the secondary internal customers. In the same way, the students are also the primary external customers and government, industry and parents are the secondary external customers. The schools must have adequate resources and be sufficiently flexible to cater for these customers' diverse needs (Figure 4-2).

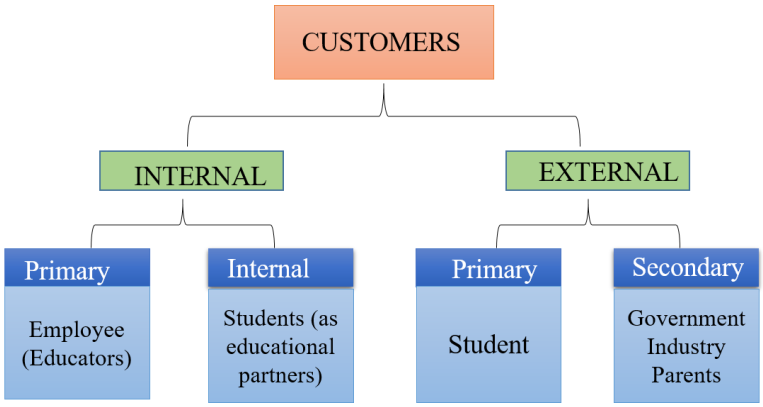


Figure 4-2: Customers of education
(Kanji, Malek and Tambi, 1999)

Although in agreement with the concept of students as customers, Sirvanci, 1996 points out some major differences between customers and students. These are listed below:

- **Freedom of choice**: Customers are at liberty to purchase and select the goods and services. However, as Spanbauer (1995) observes, students are not free to decide what they are going to learn, may not know what they should learn and are not automatically going to receive what they ask for. The teacher take the wants and needs of students into account and balance them with those of other customers, such as other students or employers or other educators who may be providing further education in the future.

- **Responsibility for paying the price**: Normally customers pay for goods and services with their own finances; this is not automatically the case for students when their parents pay for their tuition, or when tuition is subsidised.

- **Requirement to show merit and eligibility**: in a free market, businesses rarely test their customers or inspect them to find out whether they are worthy of the products or services they wish to buy, or whether they have derived enough benefit from them. Normally customers do not have to prove merit and eligibility. But to gain admission to a school or college and while they are enrolled, students are subject to continuous testing and grading and the ones who do not reach the required standard must repeat the course and are not allowed to progress to higher levels. Students must constantly work to maintain or improve their academic position.

Although these may appear to be insignificant differences, there are also attitudes and behaviours that are found frequently in students but not in customers.

For an idea to be accepted, the appropriate language must be used. The commercial connotation of customer makes the term ‘client’ more suitable. ‘Stakeholder’ is another term which is frequently used in this context. Others may decline altogether to use such language and prefer to continue to use ‘pupil’ or ‘student’ (Sallis, 2002). In the latest criteria for the Baldrige model, the categories “customer focus” and “satisfaction” have been replaced by “student focus” and “student and stakeholder satisfaction”. However, Sirvanci (1996) argues that by using “student” instead of “customer’, the message may

be conveyed that students alone are the customers and student satisfaction is the sole objective. Akinyele (2006) favours the concept of 'consumer' on the grounds that it is less problematic to identify the consumer, in that he or she is the one who consumes the service.

The future success of educational institutions depend more and more on the degree to which they recognise and satisfy their different customers. The ones who succeed be the ones who understand their mission and their customers most clearly. This means that it is essential for schools to identify their customers exactly and to understand their needs (Taiwo, 2010). To achieve this effectively we need to analyse or describe the TQM process first and then apply the results to this process to distinguish who the customer is.

4.3.2 **The roles of students**

We start with the question of whether students are merely customers: that is, whether their only role is as customers, or whether they play other roles. Education differs from other services in that students have multiple roles which cannot be simplified or reduced to a single one.

According to several scholars, there are four diverse roles which students can play in educational institutions (Sirvanci, 1996, 2004; Taiwo, 2010; Patel, 2013).

4.3.2.1 Students as the product-in-process

This process is made up of four stages or steps (Taiwo, 2010):

- **Raw material**: When students are admitted to an educational institution they are raw material (Taylor and Hill, 1993). From this perspective, students cannot be viewed as passive recipients of the learning process; their backgrounds, attitudes and varying degrees of academic preparedness must be taken into account. This perspective encourages greater understanding of the students and greater sympathy with any differences in their preparedness for the learning process.
- **Work in process:** When the students have entered the institution, they take the various courses needed to qualify to leave it. At the conclusion of each course and at various points in their academic programme, they are tested and graded.

- **Products:** At the conclusion of the educational process, students are seen as finished products (Taylor and Hill, 1993). An intangible result made up of three components – the student's knowledge, practical skills and ability to learn – is the output, i.e. the value added, not the student him- or herself. This means that the student together with the supplier (the institution overall as well as any specific instructor) is responsible for the output. This perspective means that the focus is on the final result of the educational process that the students have gone through and on recognising the skills and information they should have after completing the educational process. From this 'product' viewpoint, students are not seen as passive recipients or outcomes of the learning process or methods; course content and activity instead should be matched with the desired educational outcomes.

Figure 4-3 shows the model framework which represents the students who wish to acquire degrees as the "product-in-process".

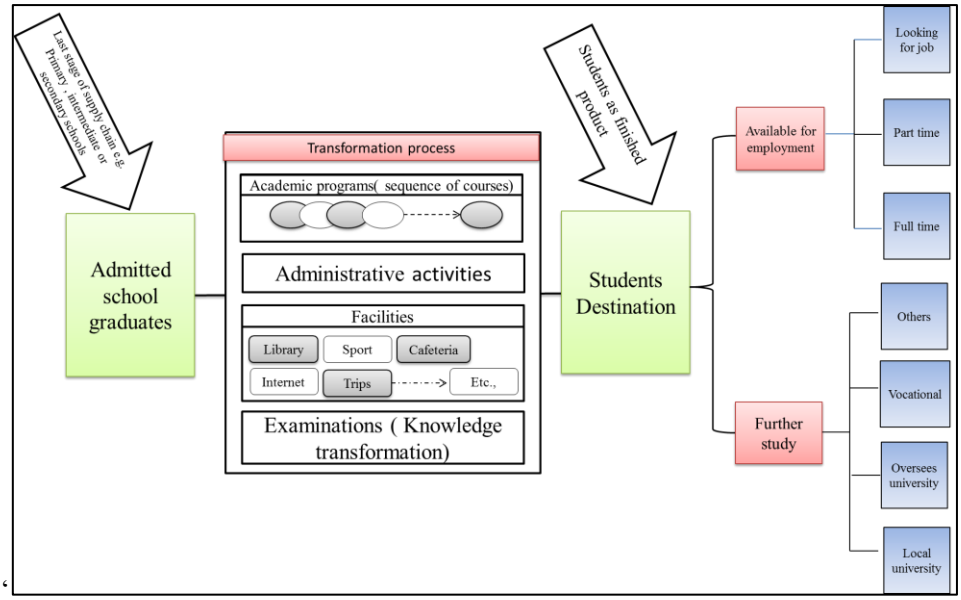


Figure 4-3: Students transformation process and student's possible destinations (Source: Author)

Figure 4-4: Analogy between education and production

Education	Production
Education (value to the learners)	The service
The learner	Primary external customer or client
Parents/governors/students in the university/employers	Secondary external customer

Education	Production
Labour market/government/society	Tertiary external customer
Teacher/support staff	Primary internal customers
Last stage of supply chain e.g. primary, intermediate or secondary school	Suppliers
Admitted school graduates	Input as raw material
Students	Product-in-process/Work in Progress
Courses	Process stage
Graduate	Finished product
Number of graduates who go on to further studies (Student Destination)	Sales
Number of graduates who go on to employment (Student Destination)	Sales
Number of graduates who do not go on to further studies and employment (Student Destination)	Unsold product (inventory)
Starting salary	Price

4.3.2.2 Students as internal customers

Students are the internal customers for facilities and should be treated as such. They are customers paying for the institution's range of facilities and services, i.e. food services, libraries, bookstores, sports facilities and so on. These non-academic facilities add to the quality of the institution's products by providing a superior school environment and supporting the academic programmes, thus attracting more students.

4.3.2.3 Students as the labourers in the learning process

Here students are seen as having two roles in the classroom, not as mere passive recipients of education but as playing an active part in the learning process. The assumption is that they learn their course material by carrying out certain activities. They be expected to:

- Work on team projects with other students;
- Take part in class discussions;
- Actively listen during classes and ask for clarification when they do not understand material;
- Read textbooks; and
- Study for tests, quizzes, etc.

This view sees the course as a shared undertaking and implies that student input should be sought when course requirements and processes are being designed or revised.

Teachers then play the role of quality inspectors who are grading students to make sure that only the ones who display a satisfactory level of knowledge progress to the next stage of the educational process. Apart from making sufficient effort, the students must possess the requisite skills, disposition and motivation to succeed. The efforts and contributions of the students play an indispensable part in determining the standard of the product of the institution – its graduates. The education process is set apart from processes in other service industries because of the importance of students' work.

4.3.2.4 Students as internal customers for the delivery of course material

Students taking a class are the ones best able to provide meaningful feedback to improve it. Here student evaluation and satisfaction are suitable performance measures. However, because the student plays a dual role in the classroom, this feedback must be treated with caution. The overlap of delivery and content may mean that some students may interpret problems with the volume and content of course materials as being due to poor delivery. For this reason questionnaires on satisfaction must be very specific and must be designed to assess only the delivery component of the course. Measuring satisfaction without reference to any specifics does not offer the service providers any meaningful feedback and any institutions with low ratings cannot identify from them what needs to be improved or how to improve it.

Taiwo (2010) also considered that it was more appropriate to see students as beneficiaries whose needs should be satisfied, although this should not mean that they are the final judges of quality in the commercial sense. When they enter the institution, most of them clearly have not much knowledge of the subjects or course materials; nevertheless, they are in a position to judge the delivery system, though not it's content.

To conclude, schools have been exposed to many challenges for some time and probably face new ones in the future. TQM equip schools to tackle these challenges more effectively. In the same way as any other service organisation, schools have their customers. These are a factor that must be taken into account when assessing performance; in the education market it is essential that the quality of services meets

the customers' needs. When implementing TQM in any organisation, the customers must be identified. Simultaneously it is crucial that institutions should work to retain the loyalty of their members of staff as internal customers. Both these groups are the drivers behind improvements to the operations and services of educational institutions; with TQM, customers are seen as a factor with a critical part to play in allowing the institution to stay in the market.

It is also important to understand that educational institutions differ from other service providers because students have multiple roles and cannot be described in simple terms as purely customers. Indeed it is essential to realise that different processes have different customers and a student not play the same role in each process. Education is an investment which has long-lasting repercussions and many beneficiaries. Students of course are the primary beneficiaries; but they fully appreciate and reap the benefits of their education only at a later date and only then, if at all, can their satisfaction be properly measured.

4.4 The Benefits of TQM in Education

TQM practices have a beneficial effect on organisational performance. TQM has been implemented in many business settings. It can increase the number of customers, the profit and also the value delivered for stakeholders, thus leading to business excellence (Kanji, 2002). The TQM model can be applied in the academic world as well as in industry; indeed it is a common view among educators that Deming's concept of TQM can be used to offer guidance on ways to raise the quality of education. TQM has been implemented in various academic settings and has been used to develop policy in educational institutions (Aldaweesh, Al-Karaghouli and Gallear, 2012).

Several authors have advocated the use of TQM in the field of education. According to Sallis (1993) the TQM approach has benefits to offer educational organisations in human as well as financial terms. Although he also stresses that it is not possible to directly apply some TQM notions, for example 'right first time', in educational organisations, he also considers that they gain by taking the concept into consideration. Sallis also holds that the implementation of TQM in educational organisations would reduce the number of mistakes made because clear systems and procedures would be in place and would improve teamwork through careful and thoughtful planning. This

indicates the flexibility of TQM in that it can be modified for use in the education sector, even though its origins lie in manufacturing and its terminology reflects the world of business.

Several TQM researchers have listed the advantages for organisations which adopt and apply the TQM philosophy. Howard (1996) lists the following benefits which follow TQM implementation: none of them is irrelevant to education.

1. Stakeholder value increased because of customer focus;
2. Greater employee commitment and development because they are more involved;
3. Goals achieved by means of strategic planning;
4. Services improved by means of continuous improvement of processes;
5. Costs reduced by cutting out unnecessary tasks.

Lewis and Smith (1994) support the change to a focus on quality in higher education, stating:

"*We believe... that adoption of the principles associated with TQM help create a superb future for higher education. We also believe it is appropriate to apply total quality to higher education because total quality emphasises principles that are firmly enshrined in the halls of academia. These include an emphasis on knowledge and education, experimentation and management by fact, continuous improvement and the ongoing development of people".*

Seymour (1994) recognises the following benefits for educational organisations when TQM is implemented: people are given a voice (they are involved), less explaining is necessary, more listening takes place, there are fewer steps and a changed climate with a readiness to pass over detail, people coming together, the development of a common language, greater awareness of 'what we are about' and less wastage, which results in less reworking and therefore lower costs.

The benefits for schools which successfully implement TQM include:

Improved morale, motivation and involvement among teachers and other staff. With Total Quality Management all members of the organisation can have a better

understanding of the part they play in helping the programme to succeed; this raises the standards of education (Taylor and Hill, 1993; Aldaweesh, Al-Karaghouli and Gallear, 2012).

Improved communication. Total Quality Management offers teachers, staff and stakeholders techniques which allow them to communicate and collaborate more effectively and enhances employee-management relationships (Lee, K and Palmer, 1999). A teamwork ethos is an additional result of TQM implementation (Pan, 2003; Al-Tarawneh and Mubaslat, 2011; Sulaiman, Manochehri and Al-Esmail, 2013).

Increased productivity. The supportive work environment which results from teacher and staff empowerment with Total Quality Management also increases productivity (Zabadi, 2013).

Improved quality. Employees strive to identify the requirements of students and stakeholders and proactively find ways to be sure their programme meets their needs (Al-Tarawneh and Mubaslat, 2011; Sulaiman, Manochehri and Al-Esmail, 2013; Zabadi, 2013).

Improved customer satisfaction: when the organisation focuses more on work processes and improvement it improves the quality of the product or service it offers (Ahmed and Siddiek, 2012). Sulaiman, Manochehri and Al-Esmail (2013) suggest that TQM also does much to reduce the number of complaints from customers.

Decrease in costs incurred by poor quality when TQM is effectively implemented there is a noticeable fall in the cost of ineffective processes (Taylor and Hill, 1993; Pineda, 2013).

Increase in competitive advantage TQM plays an important part in improving an organisation's competitive position (Venkatraman, 2007). Greater student and stakeholder satisfaction and lower costs result when organisations implement TQM, which results in increased demand and a higher growth rate.

The benefits of implementing TQM in the education sector have been examined in three different dimensions. On the human level there are satisfied stakeholders and committed employees; on the financial level there are savings in money and other

resources and on the planning level strategic planning results in goal achievement. It must also be noted that implementing TQM does not bring instant results; results be seen only after some time.

Whilst these are the expected benefits that result from lasting change, many of them benefits are not always achieved because many barriers hinder the implementation.

4.5 Overview of Obstacles to TQM Implementation in Education

According to Brigham (1993), TQM can be a useful and meaningful tool in educational institutions; however, it has seldom been implemented correctly. Rad (2006) describes some of the problems which many organisations have encountered when applying TQM. Indeed the literature on the subject indicates that only a third to one half of all organisations has experienced any noteworthy advances after introducing TQM programmes.

The TQM literature reports on obstacles, also referred to as barriers in the literature, to represent those problems that significantly prevent or hinder the progress in applying the TQM principles in the education sector. It takes some time before any success is seen and, as noted above, many barriers impede the process in both the preparation and implementation stages. To avoid these obstacles or minimise them, they must first be reviewed and clearly identified.

The present research reviewed the selection of sixty papers of TQM in education and used the method of frequency of mention to identify the main barriers hindering TQM implementation. The 60 papers identified 46 barriers as most frequently cited. Further analysis was performed, using the principle of causality to group interrelated and colour-coded items, as shown in Appendix C. The initial 46 barriers were reduced to 27. For the purposes of this study obstacles represent the categorisation of many barriers A root cause analysis of the 27 coded barriers were divided them into six categories of obstacles, this grouping of barriers into main categories will be referred to as Obstacles in this study as shown in Appendix C.1.

The frequency of obstacles in each colour-coded cluster was then totalled to establish thematically the groupings with the most significant percentages (shown in the pie chart in Figure 4-5).

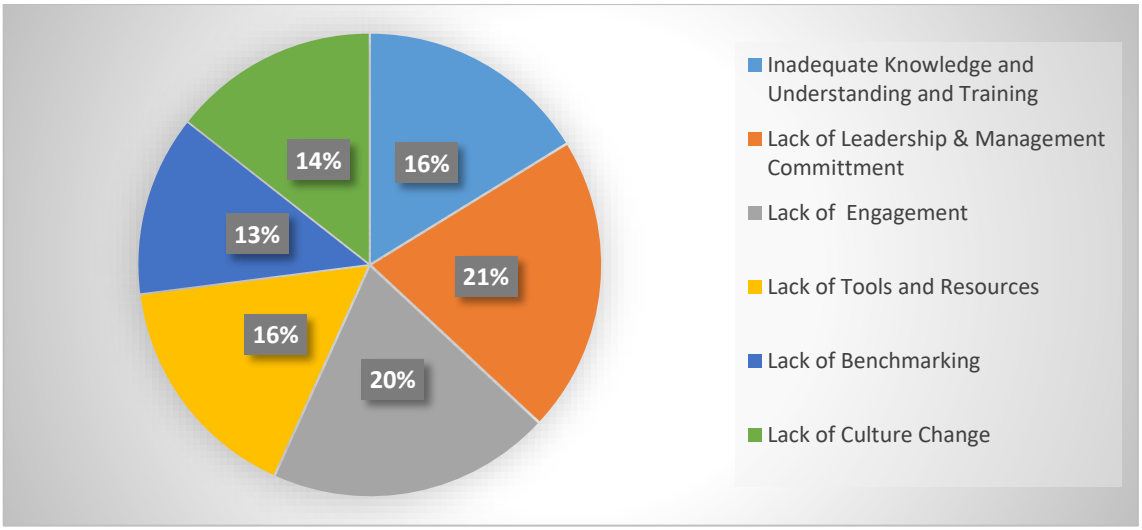


Figure 4-5: Barrier and obstacle themes

The themed groups presented in the pie chart represent the researcher's root cause analysis of the clusters of symptomatic barriers believed to impede the successful and sustainable implementation of TQM.

The themes are "Lack of leadership and management commitment" at 21%, "lack of engagement and empowerment" at 20%, "inadequate knowledge of understanding of TQM and absence of training", "lack of tools and resources" both at 16%, "Lack of culture change" at 14% and finally, "lack of benchmarking" at 13%. These themes can now be explored in more depth.

4.5.1 **Lack of proper leadership and management commitment**

The lack of proper leadership and management commitment when applying TQM is considered an obstacle in both industry and education (Brigham, 1993). It is clear that deficient commitment on the part of top management is a major barrier (Macdonald, 1998; Najmi and Kehoe, 2000; Bhanugopan, 2002; Cândido and Santos, 2011).

Al-Zamany, Hoddell and Savage (2002) consider that lack of top management commitment is a major reason for the failure of such programmes. Leaders should have a corporate vision, be prepared to initiate change and make available the resources that the team needs to move towards the corporate vision. However, senior management may want the results which TQM can offer without being prepared to support it unconditionally (Venkatraman, 2007).

Leaders of organisations are the most important figures in bringing about change. Wherever TQM has been applied there are company executives who have instigated changes in the organisational culture and have guided their organisations successfully through the journey to quality (Coate, 1993; Geddes, 1993; Sallis, 1993; Freed and Klugman, 1997; Sirvanci, 2004). All authoritative sources clearly state that the leaders of organisations must give the principles of TQM their full support, otherwise they block the implementation of TQM principles. When Kanji, Malek and Tambi (1999) investigated TQM in higher educational institutions in the UK, they observed that the longer established universities were not wholeheartedly committed to the concept of a culture of quality that would transform the organisational culture. This was manifested in the lack of support from top management and leadership for introducing new methods of quality improvement and new forms of quality culture. Rago's (1996) findings confirmed theirs; he noted that unless an institution's leadership brought about changes in the attitudes of staff members to TQM principles, successful cultural change would almost certainly not ensue.

4.5.2 **Lack of stakeholder engagement and empowerment**

Successful TQM implementation can take place only if there is effective ongoing communication and engagement of all the relevant stakeholders in the corporate vision, without which little is achieved (Al-Hayani et al., 2010).

Lack of stakeholder engagement and empowerment is complex and imposes multi-faceted obstacles. The first requirement is to identify stakeholders and their needs and expectations. From a TQM perspective, customers are key stakeholders, but this poses a significant obstacle in the education sector (Meirovich and Romar, 2006). As Sirvanci (2004) points out, there is a vast range of stakeholder groups whose members can be described as customers in the educational sector, including students, parents, alumni, employers, society, faculty, the local community, academics and staff members. Nonetheless, this is a challenge that can be overcome through discussion, provided all the people in the organisation agree in principle.

Recent empirical studies in the education sector confirm that it is imperative for stakeholders to take part in the decision-making process if total quality in education is the goal (Ngware, Wamukuru and Odebero, 2006; Bayraktar, Tatoglu and Zaim, 2008;

Lam, Poon and Chin, 2008; Töremen, Karakus and Yasan, 2009; Al-Tarawneh and Mubaslat, 2011; Tasar and Celik, 2011; Saleki et al., 2012; Patel, 2013).

Lack of employee empowerment is another barrier to TQM implementation. Deming (1986) believes that empowering employees by providing them with more authority and autonomy is important. It is not sufficient for employees to merely meet or be on good terms; if empowerment is to occur, there must be full participation. In the education sector most employees are professionals who are accustomed to enjoying a high degree of autonomy and academic freedom, but TQM also requires employees to collaborate with each other in cross-functional teams operating with autonomy, as evidenced by the acceptance of employees' suggestions (Bayraktar, Tatoglu and Zaim, 2008).

4.5.3 **Inadequate understanding, knowledge and lack of training**

The next most common barrier to TQM implementation in education that is mentioned in the literature is "inadequate knowledge of/understanding of TQM" (Safakli and San, 2007), together with failure to recognise that processes in industry differ from those in education. This may result from insufficient knowledge of TQM (Huang and Lin, 2002; Huq, 2005).

The commercial language or jargon used in connection with TQM can also cause difficulties for all stakeholders in education. According to Kohn (1993), a lack of familiarity with this jargon results in uncertainty and reduces autonomy, thus hindering TQM's implementation in educational institutions, especially in the absence of training programmes.

Venkatraman (2007) observes that it is important for educational institutes to admit the distinction between education and business before adopting TQM piecemeal. He also has misgivings about the use of metaphors by various researchers who seek to compare education with industry.

Attempting to describe the products causes similar difficulties; Al-Hayani et al. (2010) list the products as education, research and knowledge. These considerations cause difficulties when implementing quality management. This does not mean, however, that TQM principles cannot be applied. Indeed the service industries in general as well as

organisations in the education sector, are dealing with intangible heterogeneous, perishable products. This results in unclear customer expectations in which many subjective considerations play an important role in the evaluation of service quality (Meirovich and Romar, 2006).

According to Talib and Rahman (2010), the main reasons for unsuccessful TQM implementation are that staff members are not trained in TQM and that they may be worried because they feel they do not know enough about it. Focusing on employees' development and improvement through training and education reduces this risk (Kanji, 1995; Ueno, 2008) and has a positive impact on quality.

Hence, Talib and Rahman (2010) underscore that staff members are concerned and feel that they do not know enough about TQM, partly because of its distinctive terminology and the related implementation of new concepts. Tamimi and Sebastianelli (1998) warn that some employees do not feel they have the "softer skills" – communication skills, quality improvement skills – to take part in group discussion nor the capacity to identify and solve problems by means of the appropriate techniques. Therefore, focusing on employees' development and improvement through training and education alleviates this risk (Kanji, 1995; Ueno, 2008) and impacts positively on quality.

Sahu et al. (2013) promote the use of TQM-related training programmes for administrative staff, teachers and other stakeholders in educational institutions to help them understand the quality management system and their roles and responsibilities within it. This enables them with little disruption to deal successfully with changes.

Although training alone does not change people's behaviour, it is the first step in familiarising and equipping employees to handle uncertainty (Talib and Rahman, 2010). Sallis (1993, p. 128) points out that:

"Staff development can be seen as an essential tool for building the awareness and knowledge of quality. It can be the key strategic change agent for developing the quality culture … it is important in the initial stages of implementation that everybody is trained in the basics of TQM".

Employee development and improvement can be achieved and maintained through continuous training (Ugboro and Obeng, 2000; Jamali, Ebrahimi and Ali Abbaszadeh,

2010; Patel, 2013). Workers at all levels should be continuously trained to cooperate and collaborate with each other Cherkasky, as cited in (Agus, 2004). As the concepts of quality become further embedded in the organisation, employees' skills must be continuously improved.

4.5.4 Lack of sufficient resources and funding

A further obstacle in the way of TQM in education is possibly the lack of sufficient funds and resources. In order to introduce TQM, a paradigm shift must be made in the mindset of all members of the organisation, which can occur only if all employees are systematically and strategically trained. If nobody in the educational institution is qualified to carry out this training, the organisation may have to turn to outside experts with experience in the field. Thus, implementing TQM brings with it extra costs and effort and takes time (Koch and Fisher, 1998). Educational institutes are mainly funded from government sources and introducing TQM may mean that they exceed their budget.

Sustainable, radical change can occur if approached holistically, but this requires ample resources and is accompanied by extra cost, effort and time (Koch and Fisher, 1998). Adequate funding and resources must therefore be secured before the process starts. Without them, institutions face problems of many kinds, relating to management and administration, planning, instructional processes, students' performance and infrastructure, for example.

Madan (2006, p. 69) divides resources into three kinds: information resources, resources for building, tools and equipment and financial resources. As he states, "*information resources are defined as the data and information which support managers and employees in their activities in order to improve quality performance*". Moreover, after the strategic objectives have been set, schools must learn about the interdependencies between resources, which allow the schools to prioritise, adapt and improve them.

In implementing TQM, the physical infrastructure is often the first resource that needs to be adapted, because an environment must be created in which students and teachers can interact smoothly (Sahu, Shrivastava and Shrivastava, 2013). Chen, Yang and Shiau

(2006) refer to the need for an excellent "ambience" and an appropriately stocked library. Sahu, Shrivastava and Shrivastava (2013) note that statutory bodies in education should consider setting high standards for such facilities. These facilities underlie the development of more advanced tools for successful TQM implementation.

Managers then must decide which tools and techniques result in the most continuous improvement in their management processes (Tarí and Sabater, 2004). Hagemeyer, Gershenson and Johnson (2006) refer to the need for quality measurement tools for measuring new objectives and processes, in order to manage the complexity that has been introduced. To maintain motivation, it is important for management and staff to analyse new forms of information and data in good time and for the rate of progress to be demonstrated so that any adjustments can be made early and progress can be celebrated. This is confirmed by Murgatroyd and Morgan (1994), who argue that TQM uses tools and techniques not merely for measurement but also to make informed decisions, including decisions about rewards for performance.

According to Sallis (1993), employees operate at optimum capacity when their leaders recognise the employees' achievements and successes. Juran (1989) states that a reward system is important for promoting organisational development and successful TQM implementation.

Finally, to ensure that all the required tools for implementing TQM are available, financial resources must be strategically invested. Since education institutions often work with significantly constrained budgets sourced mainly by the government, large items must be budgeted for at an early stage of planning if a school wants to achieve its goals. According to Suleman and Gul (2015, p. 131), "lack *of resources and funding is responsible for … overall poor institutional performance*".

4.5.5 **Lack of cultural change**

The need for a change of culture is the most frequently encountered barrier to the application of TQM. Unsuitable organisational culture is most often cited as the reason for lack of success in introducing TQM (Prajogo and Sohal, 2004). Indeed Gotzamani and Tsiotras (2002) consider the organisational culture to be one of the most important determinants for a successful programme. When a programme does not thrive, the

reason is not usually the TQM concept in itself, but rather a neglect of the cultural and structural variables which impact on it, that is, the "culture gap". Huq (Huq, 2005) cites the failure to create a culture of continuous improvement as contributing significantly to a failure to implement TQM.

The culture of an institution must be modified before a new idea is introduced if all its members are to be responsible for putting it into action. TQM differs from other programmes in that it entails changing the way in which people relate to each other and work in the organisation. The programme is context-dependent, driven to a large degree by cultural and structural factors (Tata and Prasad, 1998). All the members of the organisation must be involved in and committed to the TQM philosophy as a condition of their readiness to implement it, leading to success.

Karimi (2012) stresses that a prerequisite of success in implementing TQM is to understand the current organisational culture. Atkinson (1990) proposes a need to make changes to the current culture(s) before mapping the ideal culture for TQM (Deming, 1986; Hackman and Wageman, 1995). A culture can be defined as a deep-rooted set of values and beliefs that determine behavioural norms (Deshpande and Webster, 1989). According to Deming (1986), changing an organisational culture is not easy or quick. Goetsch and Davis (2006) refer to organisational change as a "clash between cultures"; in any company or organisation, they assert, there is a natural conflict between the "advocate culture" and the "resistance culture."

Deming (1986), Mullins (2007) and Saiti (2012) posit that TQM is a philosophy rather than a series of techniques and a human rather than organisational process. Two characteristics, human interaction and collaboration, should be promoted in the organisation to prepare for change (McNabb and Sepic, 1995). However, the organisational climate is a structural variable that operationalises routine behaviours, actions and rewards (Schneider and Rentsch, 1988). If the current culture and climate are not fully integrated and aligned, the culture is unlikely to change. This leads to the failure of TQM implementation and has a considerable long-term impact on students' learning progress and the reputation of the educational institution (Kekäle and Kekäle, 1995).

4.5.6 **Lack of benchmarking**

Other significant obstacles are the lack of guidelines or precise criteria in the early stages of TQM and the absence of an integrated example of TQM in education (Oduwaiye, Sofoluwe and Kayode, 2012; Al Tasheh, 2013).

Ahire and Golhar (1996) describe benchmarking as the analysis of the best practices from leading competitors in a field. The aim is to recognise which best practices an organisation should import from external sources to enhance the performance of the company (Rao, Solis and Raghunathan, 1999; Freytag and Hollensen, 2001). Benchmarking also allows organisations to identify discrepancies between their performance and that of other organisations to identify the areas that require improvement (Zhang, Waszink and Wijngaard, 2000). The resulting continuous development motivates employees to be constantly innovative (Curry & Kadasah, 2002).

TQM requires the implementation of new processes to implement improvements, most of which originated in industries, not in the education sector (Huang and Lin, 2002; Huq, 2005). The lack of a guiding framework makes it difficult for schools to find benchmarks to make comparisons and self-assessments; this limits their opportunity to find innovative or alternative ways to improve the design of their processes (Rao, Solis and Raghunathan, 1999).

In addition, some educational institutions do not fully understand the concept of benchmarking and cannot use benchmarking tools correctly (Kumar and Chandra, 2001). While the pattern of measuring and monitoring product characteristics is embedded in industry, in the field of education it is a very different matter. This sector deals with people and their intangible learning processes. These are difficult to define for the purpose of carrying out a quality audit.

Suitable tools and techniques for the education sector therefore need to be specifically adapted or designed (Al-Hayani et al., 2010). They cannot be copied and applied piecemeal.

Appropriate ways of dealing with these barriers are essential for successful TQM implementation. To address and surmount them, organisations must first understand the Critical Success Factors of this process.

4.6 Critical Success Factors (CSFs) of TQM in Education

Fryer, Antony and Douglas (2007) state that once CSFs are defined, a higher rate of success at lower cost can result and there is more chance of continuous improvement programmes being gladly accepted. However, Arshida and Agil (2013) argue that there is no consensus among researchers on a method of determining the critical success factors.

Scholars and researchers have used various critical success factor methods, such as an a priori list of CSFs based on literature sources, interviews, the analysis of related organisational activities, mailed questionnaires and a combination of interviews and subsequent questionnaires (Arshida and Agil, 2013). Others, seeking to address the issue of the differences in the TQM factors that arise from the different methodological approaches, have used the criteria for awards. Some researchers find fewer than four CSFs, while others list more than 10 (Hietschold, Reinhardt and Gurtner, 2014).

Brotherton and Shaw (1996) and Fryer, Antony and Douglas (2007, p. 502) define CSFs as "*the essential things that must be achieved by the company or which areas produce the greatest competitive leverage*". They emphasise that these CSFs are not goals but represent management influenced actions and processes that should be conducted to achieve the objectives of the organisation. They stress, moreover, that CSFs are dynamic, not static and they depend on the current and proposed future state of the organisation.

The present research therefore looked at the quality standard operating EFQM model, which serves world-wide as a standard for quality in all industries, to understand what the essential determinants of Critical Success Factors are. This EFQM model adopts the key input factors of the model's implementation, which are necessary to produce the results (criteria) expected from correct implementation. The EFQM indicates that the inputs and the outputs are interrelated. The key input factors are the people, processes

and structures that need to be optimised through the processes devised for managing the quality of practice.

According to Calvo-Mora, Schmidt et al (2013, p. 15) "*these activities are not independent, they must be applied jointly and coordinated with the aim of achieving excellent results*". These optimising activities and processes work together in a systemic way. Furthermore, Temtime and Solomon (2002) emphasise that continuous improvement can result only from adopting a step-by-step and systematic procedural approach combined with the root cause analysis of problems to ensure that solutions be permanent and not merely a quick fix.There are two types of TQM process inputs: the integration of the technical and of the social elements. These can also be described as hard (tangible) and soft (intangible) factors, although it can often be difficult to distinguish between these two groups (Black and Porter, 1995) and authors differ in which factors they classify as soft and which as hard, with no well-defined distinction between the groups. Furthermore some may include both soft and hard aspects since the factor may involve two dimensions which must interact with each other (Calvo-Mora Schmidt et al., 2013).

Lewis, Pun and Lalla (2006) suggest that the soft factors of TQM are generally associated with the behavioural aspects of leadership, top management commitment, the quality of the corporate culture, human resources, workforce commitment, employee empowerment, shared vision, personnel training, employee involvement, teamwork and customer focus (Black and Porter, 1995; Rahman and Bullock, 2005; Lewis, Pun and Lalla, 2006; Calvo-Mora Schmidt *et al.*, 2013). For their part, the hard factors of TQM are associated with the systems, strategy, processes and management tools that are needed to support the application of the soft factors. Some of these are strategic planning, benchmarking, service design, measurement, process management and improvement, continuous improvement and innovation, information and performance or service design. These make up the technical side of the quality management system and are the techniques and tools that underpin decision-making (Gadenne and Sharma, 2009; Calvo-Mora Schmidt *et al.*, 2013).

Quality management, postulated by Dean and Bowen, (1994) is a combination of management principles, practices and techniques to improve organizational performance.

Service management orientated organisations such as hotels, banks and similarly related service sectors recognise that there is recognition that the interplay between the hard and soft variables exerts a greater influence than in manufacturing or product led industries because of the greater psychological and physical proximity between the employees and customers in their service encounters. Such services require tools to assess the perception of the attributes of personnel by customers, as well as the expectations on the human, tangible and technical aspects of service quality (Lenka, Suar and Mohapatra, 2010).

Lenka, Suar and Mohapatra (2010) argue that the combination of soft and hard aspects of quality management is essential to achieve service quality and customer satisfaction. Soft aspects such as transformational leadership, workplace spirituality, service climate, human resource management practices, employees' affective commitment and job satisfaction. The hard aspects incorporate the management information system and physical evidence.

The customers perceptions of service quality would extend to the hard or tangible elements such as the physical and environment aspects ; the building exterior, décor, equipment and facilities such as parking (Parasuraman, Zeithaml and Berry, 1985).

This is consistent with Kirk (1995) views that a "hybrid" integration of hard (technical, facilities, equipment), scientific techniques and soft systems (human dimension) need to be adopted as part of a systems based approach to problem solving and operational management at an early stage within the processes development to optimise problem resolution and operational management.

Nonetheless, the service management literature also indicates that despite the closer relationship between customer and employees in service management, the intrinsic cultural factors will determine the level of soft/hard sensitivity integration.

A study of Greek firms by (Psychogios and Priporas, 2007) and Portguese firms (Earley and Erez, 1999) determined that within these cultures there is a high propensity of

uncertainty avoidance and so they have adopted documented systems and management-by-fact approaches.

Finally, Evangelos Psomas , Fotis Vouzas , Dimitrios Kafetzopoulos , (2014) study of 90 Greek food service firms identified the very binary consideration of hard and soft aspects but concluded that the "soft" TQM elements have a significant direct impact on quality improvement, employee benefits and customer satisfaction. However, the impact of the "hard" TQM elements on the above quality management benefits is not direct but indirect, through their significant correlation with the "soft" TQM elements".

4.7 Summary

Quality is a multifaceted concept and its influence on the education system needs to be comprehensive and pervasive if the education sector is to fulfil its requirement to supply individuals to society who can adapt, innovate and advance.

The literature indicates that TQM is a philosophy, strategy, a process and a methodology, the implementation of which needs to be mapped into all the functions, processes and involves all the stakeholders. All the key stakeholders need to come to an agreement on the definition of customers of education, the role of students mapped to the accepted industry's TQM terminology and the role of process to the education sector.

Beyond quality, the implementation of TQM is considered to encompass a wide range of benefits from improved morale, communications, increased productivity and customer satisfaction whilst reducing costs and increasing competitive advantage.

Further analysis of TQM literature indicates that there is no discernible difference between the application and applicability of TQM principles or practices between the manufacturing and service organisations despite the differences in their operational natures (Prajogo and McDermott, 2005).

However, the research notes that TQM is context-dependent and that the cultural and structural factors needed to change the way people relate to each other and work in the organisation should be connected. In this respect, TQM is seldom implemented correctly and its progress is often obstructed. The analysis of the published works on TQM in education highlights some significant influences on the successful and sustainable implementation of TQM.

The most significant of these are lack of proper leadership and lack of management commitment, failure to identify, engage and empower stakeholders, inadequate understanding, knowledge and lack of training on the part of employees; lack of sufficient resources and funding; lack of cultural change; and lack of benchmarking.

In addition, the published research has identified that there is an interdependency between hard and soft aspects of CSF that needs to be considered in the implementation. Without these critical success factors, the major underlying hindrances that significantly prevent or hinder both the successful implementation of TQM and its associated benefits make themselves felt.

The next chapter reports on the origin of the Capability Maturity Model and explores the development of the People Capability Maturity Model, together with the role it can play in developing the operational work practices needed to transform a culture.

5 People Capability Maturity Model

This chapter seeks to understand both the behavioural characteristics at each level and the way in which they contribute to the transformation of culture. It concludes by considering the benefits of using the People CMM (P-CMM) in change programmes such as TQM.

The chapter starts with the origins of the Capability Maturity Model in the software development processes of the early 1980s. The unique approach of having systematic evolutionary stages incepted by Humphreys surmounted the traditional barriers that prevented sustainable and permanent continuous improvement such as the new software promised.

Humphreys' five tiered model became the industry standard which led to its adoption and adaptation in many different sectors, not in software or technology alone. One of these adaptations in the CMM family was the People CMM, which addressed the fact that the original CMM did not fully consider the role of people's development and behaviour.

The chapter, therefore, is divided into three sections:
Section (5.1): The Model's Background
Section (5.2): The Maturity Levels for the People -CMM
Section (5.3): Summary

5.1 Model's Background

The concept of the Capability Maturity Model (CMM), devised by Humphreys at IBM in the 1980s, is a five-tiered model that focuses on changing an organisation's behaviour to support improvement initiatives (i.e., through its culture) occupying five stages in advancing maturity (Curtis, Hefley and Miller, 1995).

Humphrey adopted the Deming improvement cycle (Plan-Do-Check-Act) as a means of achieving continuous improvement in software development but his unique insight was to realise that the cycle needed to adopt a systematic sequence of maturing stages (Becker, Knackstedt and Pöppelbuß, 2009; Gottschalk, 2009; Röglinger, Pöppelbuß and Becker, 2012).

The intended goal of Watts, Humphreys and his colleagues at IBM for the initial SW-CMM was to "*increase the capability of an organization's software development processes*" by reducing defects and increasing productivity at a time when long delays and significant cost overruns were industry norms (Curtis, Hefley and Miller, 2002, p. 12).

The CMM comprises three domains: the targeted domain of processes, total quality management practices and organisational change. The organisation has first to identify and adopt best practice in a targeted domain. Second, these processes must become more effective and predictable by undergoing continuous improvement, using the Total Quality Management concepts pioneered by Deming, Juran, Crosby and others. Third, the CMM constituting the organisational development introduces these practices in stages (maturity levels) to create a succession of changes in the organisation's culture (Curtis, Hefley and Miller, 2002, 2009; Wademan, Spuches and Doughty, 2007).

This method became standard in the defence and aerospace industries and gradually spread into other information-intensive sectors, including the automotive, entertainment, telecommunication and finance industries (Wademan, Spuches and Doughty, 2007). The result was the CMU/SEI's CMM framework which "*received widespread acceptance as a standard for process modeling and assessment of organizational maturity*" (Pennypacker and Grant, 2003, p. 7).

The successful adoption of this maturity framework led to the development of additional CMMs beyond software and technology (Curtis, Hefley and Miller, 2002; Gomes, Romão and Caldeira, 2013). One of these was the People CMM developed by the CMU/SEI (Wademan, Spuches and Doughty, 2007) which guides organizations in developing the capacity of their workforce (Hefley and Curtis, 1998; Türetken and Demirörs, 2004).

The P-CMM is an adaptation of CMM concepts focused on developing the organization's human capabilities. It uses the same architectural principles and structural formatting as the Capability Maturity Model for Software (SW-CMM), but it overcomes the concerns and issues raised by the heavy focus of CMM on process or technology at the expense of people. The CMM does indeed require a significant change in managing people and supervising the continuous improvement in their organisational

capability that is needed to make best use of the technology and the software resources available (Mukherjee, 2013).

According to Kulpa (2007), an organisation is shaped by three dimensions: **technology, people and processes**. Technology offers a rapidly evolving paradigm that moves at its own pace. Processes are monitored and certified by numerous quality systems such as ISO, Six Sigma, CMM, Deming and so on. It is through the P-CMM system of standardisation that quality is injected into the third dimension, namely, through the people concerned and specifically the people processes (Mukherjee, 2013).

(Kulpa, 2007, p. 19)
Figure 5-1: Three components of improvement focus

The People CMM (P-CMM) targets workforce management processes, while other models, such as CMMI, focus on system and software engineering processes. P-CMM can be coupled with an improvement in CMM-based software program processes and can also be used on its own (Curtis, Hefley and Miller, 1995). The P-CMM includes an assessment instrument, which focuses on management and guides the organisation to integrate the development of the required key capabilities in the workforce so as to continuously revitalise the organisation (Mukherjee, 2013). The P-CMM provides a roadmap for transformational organisation programs such as TQM and thus steadily improves workforce practices.

The P-CMM builds Workforce Capability through structured processes that develop the level of knowledge, skills and processing abilities available to perform an

organisation's business activities (Mukherjee, 2013). A process is made up of interrelated groups or clusters of related practices. Workforce capability indicates an organisation's readiness to perform its critical business activities, its likely result from performing them and its potential for benefiting from investments in process improvement or advanced technology (Curtis, Hefley and Miller, 2003).

Maturity refers to an evolutionary improvement path that moves from ad hoc, inconsistent workforce practices to a state of continuous improvement. P-CMM helps an organisation to move progressively towards this state (Mukherjee, 2013). The integrated system of workforce practices matures alongside increasing alignment with the organisation's business objectives, performance and changing needs (Curtis, Hefley and Miller, 2002, 2009). The model guides the implementation of policies that facilitate lasting improvements for surmounting the major impediment to cultural change – trying to implement too much too soon and not laying the right foundation for practices (Curtis, Hefley and Miller, 2002, 2009).

5.2 Maturity Levels for P-CMM

A maturity level is an evolutionary plateau of related practices for a predefined set of process areas in a specific domain which have to be transformed to achieve a new level of organisational capability. In this context, maturity relates to "*an organisation's ability to consistently improve the knowledge and skills of its staff and align their performance with the organisation's* objectives" (Curtis, Hefley and Miller, 2002).

When a system of practices has been established or transformed to provide capacities and results that the organisation did not have at the previous level, each new maturity level improves the organisation's overall performance (Curtis, Hefley and Miller, 2001; Mukherjee, 2013).

P-CMM covers an amazing 495 practices across 22 process areas, ensuring that the requirements of many types of organisation are represented.

Each maturity level increases the level of complexity that in turn demands the integration of further knowledge and skills. Hence, this development rests on an already established foundation of knowledge and skills. The transformation progresses at each maturity level and provides continuous improvement, which enables the organisation

to equip its people with increasingly powerful tools (Curtis, Hefley and Miller, 2009; Mukherjee, 2013).

An organisation's progress is measured through its moves from one level to another, 1 through 5. Most organisations with minimal HR systems are likely to be at **Level 1,** where some HR practices have evolved, but they tend to be inconsistent. The progress to more consistent, repeated and replicated practices marks the move to **Level 2,** where the seeds of people management take root and the organisation installs the foundation required for a robust people process framework.

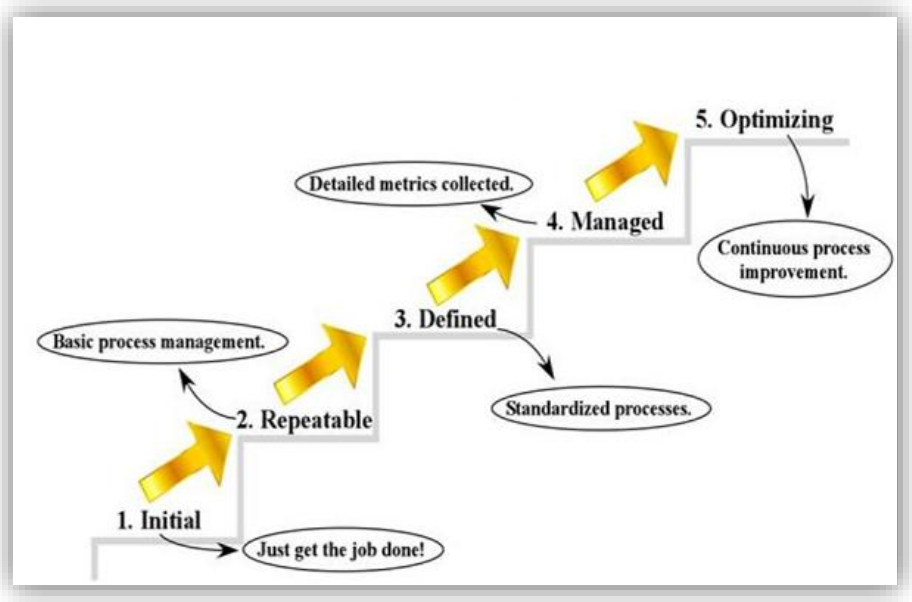


Figure 5-2: Five stages of developing workforce capability
(Tutorialspoint, no date)

Level 3 brings with it the concept of competency management with defined workforce practices. The authors of the model define a workforce competency as "*a unique integration of knowledge, skills and process abilities acquired through specialized education or work experience*". Competency plays a crucial role, whether in recruitment, compensation planning, training or some other aspect of workforce management (Curtis, Hefley and Miller, 2002, p. 4).

Level 4 marks the acceptance by an organisation of the capability management framework, with measurement and empowerment leading the way. Here the integration of people processes with business processes begins, as does measuring the correlation of the two.

Level 5 places all its emphasis on the need to continuously maintain and improve capability in each element: the personal, the workgroup and the organisational (Wademan, Spuches and Doughty, 2007).

The P-CMM maturity levels need to be accompanied **by a measurement system. This provides the mechanism for assessing the progress of maturity** through the model, which involves comparing actual performance against a **standar**d. The measurement system needs to assess maturity (i.e. the competency, capacity and level of sophistication, based on a comprehensive set of criteria). The most popular way of evaluating maturity is a five-point Likert scale with '5' representing the highest level of maturity (de Bruin *et al.*, 2005).

Thus P-CMM combines a build and measure model to support the organisation in benchmarking against a desired standard and global best practice in the area of people processes and to assess where it stands.

5.2.1 **Behavioural characteristics of maturity levels**

The transformation of the workforce's capabilities evolves over progressive levels. This research summarises the analysis of the significant changes in the workforce practices, environment, management and the organisation's state in a composite representation (see Table 5-1) according to the authors and key researchers in this area (Curtis and Hefley, 1996; Wagenstein, 2006; Wademan, Spuches and Doughty, 2007; Mukherjee, 2013).

Table 5-1: Composite representation of changes in P-CMM

Workers Practices/Environmental Characteristics	Management and How management works	Organisation Results or the Cultural State
Level 1 (Initial awareness)		
• Workforce practices tend to be undocumented, unrepeatable, inefficient, inconsistent and ad hoc in most areas • Work procedures are constantly reinvented • Projects and initiatives are frequently introduced in a chaotic manner • Work environment is poorly equipped • Work ethos relies on slogans and exhortations • Individuals at this level do not take workforce practices seriously, since they do not believe the practices have much relation with the world beyond. • Results rely on the skills of exceptional individuals and excessive overtime	• Generally managers and supervisors lack preparation for ensuring the desired performance by their workforce • Managers have a low level of training and usually must resort to using their intuition in managing their staff. • Evidence of some policies or forms to guide the workforce but little guidance • Managers' responsibilities are rarely defined • Managers do not know exactly how to manage performance and avoid workforce related functions which they consider to be merely administration, or have had no training to help them perform these activities	This culture is defined as being an "ad-hoc" racy: - Displacement of responsibility - Workforce emotionally detached • Few performance appraisals • Job candidate interviews have little preparation • Practices are performed as rituals and not as a result of designed processes that have a purpose or measurable results. • Often failure to detect significant events that impact on current or future performance • Constant churn in the workforce leads to high workforce turnover
Level 2 (Managed and Repeatable)		
• The focus of work practices and activities is **at the unit level** only	• The focus on workforce activities becomes high-priority • Managers are trained to manage their people	The culture is considered by the local work force to be stable because the practices are standardized and repeatable. However, they are characterized by the frequency of problems related to:

• Establishing basic practices to address immediate problems • Individuals are responsible for performing specific jobs • Basic processes have been established, defined and documented. They can be repeated on subsequent projects. • workforce practices are expected to develop repeatable features • People in a unit develop consistent expectations about the way that they be treated.	• Managers have allocated responsibilities • Managers accept responsibility for managing and developing the people reporting to them, such as ensuring that personnel reporting to them have the skills and resources required to meet their work commitments • This sets the early foundation for performance management • Managers are vigilant regarding problems that impair performance in their units • Managers pay attention to unit-level issues such as staffing, coordinating commitments, providing resources, managing performance, developing skills and making compensatory decisions. • Managers can indicate what resources are needed to support the unit-level implementation of basic workforce practices. • Managers are focused on managing individual performance and coordinating individual contributions to secure effective unit performance. • The organization's capacity to perform work is best characterized by the capacity of units to meet commitments. •	-Work overload -Environmental distractions - Unclear performance objectives or feedback -Lack of relevant knowledge or skill -Poor communication -Low morale • As an organisation achieves Maturity Level 2, units become stable environments for performing work. Units are able to balance their commitments with the available resources. They can manage their skill and resource needs through acquisition and developing the skills • Measurement of the status and performance of these workforce activities is established and used as a means of monitoring and ensuring the appropriate performance of workforce practices • Reduced Voluntary Turnover When people begin to see a more rational work environment emerge in their unit, their motivation to stay with the organisation is enhanced.

Level 3 (**Defined)**		
• The workforce is defined by competencies comprising knowledge, skills and process abilities which are developed and transferred across workgroups • A common organisational framework is established with practices standardized across units and the organisation • Defined processes simplify coordination in the workgroup • Measures of capacity are quantitatively managed and measured • Competent professionals demand a level of autonomy in performing their work.	• The organization values its workforce as a strategic asset • Competencies are aligned with the business's strategy and objectives • Training and development practices are systematically focused on developing the knowledge, skills and process abilities of the staff. • Staff are motivated to achieve and rewarded for the desired workforce competencies	The culture is characterized by being participatory, which enables the organization to gain maximum benefit from the professionalism and capability of its workforce. • Employees benefit from functioning as autonomous individuals working in empowered workgroups. • Employees can identify improvement opportunities, pursue career growth and be rewarded on the basis of their work contribution. • A participatory culture of professionalism is realized through the use of a common set of best practice processes • The abilities of competent professionals are used to perform business activities. • Decision-making processes are adjusted to encourage faster decisions by the individuals closest to the need.
Level 4 (Measured - predictable)		
• At this level empowered individuals conduct their work practices independently on the basis of standardized processes. • Members of each workforce competency community are masters of their competency based processes • Each unit or workgroup, measures the performance of the critical-competency-based processes needed	• Management focuses more on strategic issue management than operations management. • The existing organisational capacity is strategically managed and used to identify and plan future capacity requirements for exploiting business opportunities • Information and data are used to measure, improve, integrate and predict workforce capacity.	The organisation is information based and performance has become more predictable. Success is planned and predicted, rather than merely fortuitous. The key characteristics include: • The organisation manages and exploits the capacity created by its framework of workforce competencies • Employees and managers trust each other and seek mutual benefits

to accomplish the business objectives • Workforce practices are sustained through formal mentoring activities.	• Management delegates responsibility and entrusts decision making to a workgroup for the management of day-to-day operations • Management analyses, measures and controls processes across multiple departmental units. • The organisation introduces new techniques (e.g. Six Sigma) to measure baselines and performance and identify corrective action, if any.	• Variability in performance is reduced and access to information is greater. • The organisation processes become a single value chain of multidisciplinary processes that meet strategic objectives and have been shown to accelerate business results.
Level 5 (Optimizing)		
• The work practices are routinely optimized as all staff strive to improve their performance • Individuals are encouraged to make continuous improvements to their personal work processes • Individuals, groups and functions constantly analyse their work to make necessary improvements • Innovative practices are regularly tried out and evaluated for future deployment throughout the organisation.	• The focus of management is continually on evaluating the latest developments in workforce practices and the potential of technology for continuous improvement. • Inputs for potential improvements to workforce practices come from many sources: - lessons learned - workforce suggestions - the results of quantitative management activities	The culture of the organisation treats change management as an ordinary business process to be performed in an orderly way on a regular basis. The key characteristics are that: • workforce capacity is continually improving • Corrective action is taken to realign performance objectives and results when necessary • Improvement occurs through incremental advances in existing workforce practices and the adoption of innovative practices and technologies.

The rise of the knowledge-based economy makes knowledge crucial to the continuous and uninterrupted functioning of knowledge-driven companies. The organisation's integral ability depends on attracting and retaining skilled manpower and therefore it

is vital to a structured framework to continuously build and develop knowledge for performance (Mukherjee, 2013).

P-CMM is a framework based on four themes and five stages, as illustrated in Figure 5-3 below. It is founded on the current best practice in fields such as human resources, knowledge management and organisational development. It is considered the first initiative to bring about an institutionalized, standards-based approach to building an organisation's HR framework.

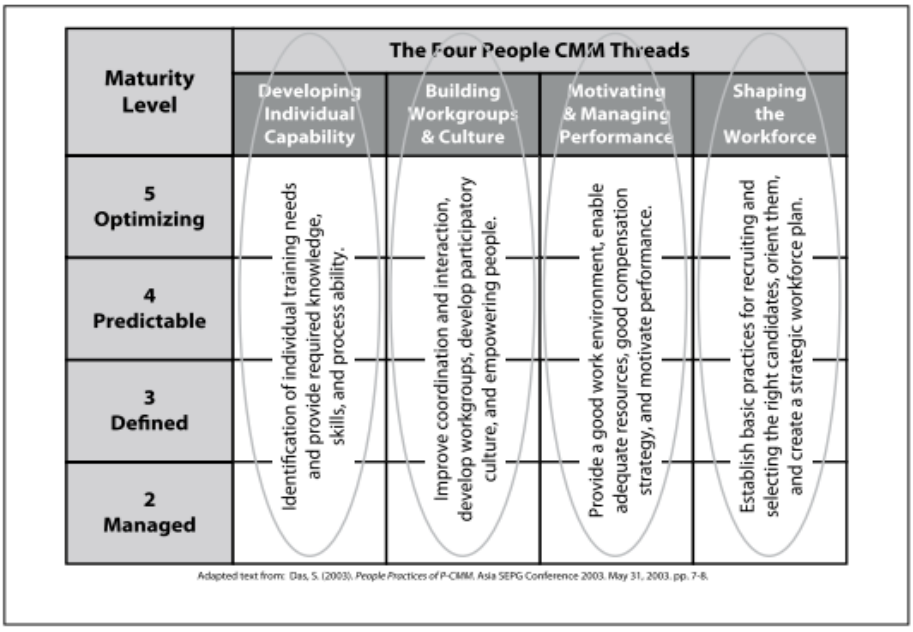


Figure 5-3: Four major theme areas for the People -CMM
(Wademan, Spuches and Doughty, 2007)

The CMM model adopts a more generic approach that consider the processes as the most strategic driver that is the mechanism for effectiveness. However, in the People Capability Maturity Model, the focus is rather on the Practices as the strategic driver, which means that there is much greater emphasis on the importance of the workforce of an institution, their attitudes and their capability to demonstrate the practice. This study contends that process by itself is not responsive, intuitive and has no inherent capability of its own, the process needs to be performed correctly, under the appropriate circumstances if these change so the process must be adapted or the process may no longer be effective. Therefore the process is an important instrument but it is the capability of the workforce to use this instrument appropriately that can result in the required end result.

It can be argued that in a manufacturing or service industry there are a collective working towards satisfying the same customer or producing a standard output. In the education system there is no single standard product output, there is however, an expectation of a multiplicity of set outcomes. The internal and external stakeholders and student interdependence is much more varied and complex and is operating within a context of a knowledge intensive system. So teachers work more independently and not collectively (Yew Wong, 2005). Therefore, it is the opinion of this study that for the change approach in education to be successful it requires that the system introduced needs to have more flexibility, be more intuitive and continuously responsive. Therefore this becomes more complex and depends on the inherent capability of the individuals within the system to effectively interpret the principle, in regard to the set objectives and put them these principles into practice under varying circumstance.

The conditions above coincides well with the premise of the PCMM mode. The PCMM model facilitates maturity of an organisation through the development of the capability of the employees. Employees capability, rather than processes are considered to be the strategic driver needed to achieve the intended outcomes (Dodrajka, 2010).

Furthermore, this means that the application of PCMM requires tailoring to the institutional needs. This reinforces that human capability and competencies need to be appropriately defined, developed and supported for the whole institutional system in such a way to allow individual and independent entities within the institution to recognise what they need to respond accordingly but also recognises that each independent entity may have a different starting point to achieve alignment. Therefore, the standards set must be sufficiently defined that the entity can work towards the desired standards, building the competencies over time.

The findings of a case study by KPMG of PCMM in India describe the challenges and benefits of the implementation of PCMM. An important consideration for the change management approach is that it requires a twofold change, firstly identify and develop the processes and secondly identify and develop the competencies. Another key finding is that the nature of the workforce capability is always in continuous development (improvement) and so there is no natural end point that can be reached. This presents a significant challenge to finalising the implementation. Therefore, a set point must be

determined for each change programme. If this is not managed effectively the organisation will experience change fatigue and result in an intervention programme that is never completed (Ramam, Sankaran and Aggarwal, 2015).

5.3 Summary

This chapter presented the origins and composition of the P-CMM. The P-CMM provides a systematic model that can be developed to implement the TQM's critical capabilities for success. The five tiered evolutionary stages of P-CMM provide a mechanism for overcoming the traditional obstacles that typically delay or hinder the progress of major transformational programmes of this kind. The most significant barrier experienced in the changing of a culture is the building and embedding of new knowledge and skills that result in the behaviours desired to demonstrate the new culture.

The five stages of evolving maturity provide a road map for TQM implementation. The organisation can define the desired practices and establish these in a programme of progressive stages by setting the priorities for the desired level of improvement in the actions at each stage. As capabilities develop, each stage forms the foundation of the next and thus integrates workforce development with process improvement and establishes a culture of excellence.

This graduated mechanism facilitates new knowledge and skills, their measurement and the assessment of their progress in terms of the maturing TQM capabilities. Providing a clear direction and expectation of what is required and putting supporting systems in place to enable the workforce to achieve this can reduce employees' resistance to change in the education sector and increase their satisfaction. From the institution's perspective, it ensures that the desired concepts are translated into operational practice and the skills and behaviours are embedded.

Many workforce benchmarks are limited because they focus on employee attitudes and satisfaction rather than workforce practices The P-CMM has been found successful because it allows organisations to characterise the maturity of their workforce practices against a benchmark in use in other organisations.

The analysis of TQM in education as described in the literature explores the reasons why TQM fails and the Saudi Arabian cultural context. A systematic approach to address these reasons is to build:

- A framework of CSFs for TQM implementation in Saudi girls' schools
    - Integrating the hard and soft aspects of CSFs.
    - Showing the inter-relationship between obstacles and CSFs.

- A change management approach appropriate to facilitate the next steps of TQM implementation in Saudi girls' schools
    - List of hard and soft CSFs in the stages in the maturity development of these schools.
    - An evidence based approach to implementing the principles of TQM in practice.

6 Research Methodology

This chapter describes the research design, philosophy and the process of its fieldwork. It presents the important choices made regarding the information selected and the resources used to determine the principles of the research strategy, the approach adopted, data collection methods used, the study population assessed and what data analysis methods and instruments were chosen, as well as the choices regarding research validity and generalisability. These research methodology decisions were necessary to direct the study and they affect the quality of the result. There is however, no one size that fits all research problems, nor is there an ideal solution Instead, the choices made are a combination of compromises (McGrath, Martin and Kulka, 1982) and every research design has its benefits and disadvantages.

According to Neuman (2000), research is a systematic process of inquiry to explore and discover knowledge about an area, event or action in society, science or nature. It is often seen as a process that is conducted in a procedural framework (Remenyi *et al.*, 1998) and involves making choices.

Furthermore, Yin (2003) states: "*the characteristics of the research inquiry greatly influence the selection of an appropriate research strategy*". These characteristics need to take into account the nature of the research, the research problem, the associated objectives and the research questions. The research also be affected by other factors, such as the time allocated to perform the study; access to the research sites; and the researcher's experience and skills.

According to Crotty (1998) there are four elements required to build an appropriate research design framework: the research philosophy, research approach, and research strategy and research methods.

6.1 Research Philosophy

Philosophy refers to basic beliefs regarding the world we live in. These beliefs are shaped by two underlying assumptions that govern the type of thinking. Firstly the assumptions about these beliefs, the 'ontology', produces the understanding of knowledge. Secondly the 'epistemological' assumption is concerned with the study of the knowledge and what is accepted as valid knowledge (Burrell and Morgan, 1979).

Ontology addresses how the researcher explains the reality from the researcher's standpoint, whereas epistemology answers the question of how things really work, and what are the best ways to acquire knowledge (Lincoln and Denzin, 1994).

Table 6-1: Research philosophy paradigms

	Positivism	**Post-positivism**	**Realism**	**Constructivism**
Epistemology	Objective point of view	Findings probably objectively true	Both subjective and objective points of view	Subjective point of view
Ontology	'Real' reality but comprehendible	'Real' Reality but only imperfectly comprehendible	Virtual reality shaped by social, political, cultural and economic values	Local and specific constructed values

Source: (Lincoln and Denzin, 1994)

Kanellis and Papadopoulos (2009) state that any research activity seeks "valid knowledge" through different approaches and different ways of understanding reality Therefore it is the set of beliefs that is the foundation for how one understands and explains the surrounding reality (Guba and Lincoln, 1994). Kaplan and Duchon (1988) remind us that reality may be subjective, and depends on the context and factors such as time and place. Others adopt the approach that it should be objective (Singleton and Straits, 2005).

There are two schools of thought according to Creswell and Clark (2007): positivism and interpretivism. In addition, the critical realist school has recently emerged which has created a bridge between these (Wynn, J. and Williams, 2012).

Positivism believes that there is a single reality shared by everyone in the world which is not known to anyone. Therefore, in this way reality is deduced from the literature which can then be used to develop a theoretical framework (i.e. deductive logic) to explain the research problem. This proposed model can then be tested in an objective way either with a survey or an experiment to verify the relationships.

As the positivist school believes there is only a single reality which is external to the researcher, the researcher needs to be objective in the collection and analysis of data. Using a questionnaire is an objective method to way collect data that can be analysed using statistics. Bhattacherjee (2012) advises that positivists develop theories from the

verification of hypotheses (a validated relationship between concepts to explain phenomena (Singleton and Straits, 2005).

Interpretivism, however, believes in multiple realities which are carefully socially constructed from the relative context. This reality is known to experts, consultants and every society. Therefore, frameworks that presents research phenomena from different perspectives are designed by experts and used to *understand* what people call reality (i.e. using inductive logic). These models are abstractions of reality in diagrams which describe, investigate, and analyse the content being researched.

Thus the Interpretivist School believes that multiple realities according to the different contexts exist and that the researcher becomes part of this process by interpreting and understanding. This pluralistic reality enables a more insightful and in-depth understanding but does not support a broader view which therefore limits the ability to generalise and conclude objectively. By interviewing experts it is possible to understand the context, and comparisons between their opinions can support the development of a unified model of understanding (Onwuegbuzie and Johnson, 2006). This is the typical ontological stance of grounded theory authors (Glaser, 1978; Charmaz, 2006; Birks and Mills, 2011).

Alternately, the recent emergence of a third perspective has created a bridge between these two schools of thought. The Pragmatic (Critical Realist) approach takes into account a multiple "world view". According to Tashakkori and Teddlie (2010), it combines the previous two perspectives within a single study and can be applied either simultaneously or sequentially.

Furthermore, Yin (2003) states: "*the characteristics of the research inquiry greatly influence the selection of an appropriate research strategy*". These characteristics need to take into account the nature of the research, the research problem, the associated objectives and the research questions. The research also be affected by other factors, such as the time allocated to perform the study; access to the research sites; and the researcher's experience and skills.

6.2 Research Approach

Jankowicz, (2000, p. 209) describes the research approach as a "*systematic and orderly approach taken towards the collection and analysis of data so that information can be obtained from those data*".

Oppenheim (1992) considers that there are two main types of data to be collected and generated: primary or secondary (Churchill and Iacobucci, 2009). Primary data is collected directly by the researcher from original sources, whereas secondary data is data previously collected by other researchers. Primary data is often more valuable in research into the behaviour of human beings (consumers or employees) which aims to determine what influences may impact upon a final outcome. In contrast, secondary data is most often historical and numerical, and relates to historic indicators. It is generally used for analysis, as, for example, in details of financial performance published in annual company reports, or via other media such as financial websites (Yahoo Finance, Bloomberg, etc) (Sekaran, 2010).

The next consideration is what method will be used to collect and generate the primary or secondary data. Here there are three approaches: qualitative, quantitative, and mixed method. The choice between these three types has to consider the research aim and objectives to be achieved.

The quantitative approach is typically used to analyse numerical data and the qualitative approach is used when the data is made up of words (Krathwohl, 1993; Robson, 2011). The following section addresses the main characteristics of the two methods and constructs a comparison between them in order to determine whether a mixed method is more suited to achieving the research's aims and objectives.

6.2.1 **Quantitative Approach**

Wiersma and Jurs (2009) describe the quantitative approach as being deductive, reasoning from general to specific, theory-based, context-free, and used to determine relationships, effects and causes.

It is a method that seeks to measure "how much" or "how often". The quantitative method can be considered to be at the extreme end of empiricism, as it relies on control and explanation of the observed phenomenon (Nau, 1995).

Creswell (2003) argues that it is most relevant when the problem need is to identify factors that influence an outcome as well as to understand the best predictors of outcomes, or the utility of an intervention.

6.2.2 **Qualitative Approach**

This approach was initially developed within social science research to study social and cultural phenomena. It uses data collected through narration and is conducted by means of contact in the field or in real-life situation. It is often also preferred when there is little previous research information.

The attributes of the qualitative approach include most importantly that the data focus is on current occurring, ordinary events, in situ. If conducted well it can provide rich data that has the potential to reveal the complexity that underpins the situation. It provides explanations which extend our understanding and promote opportunities for making informed decisions regarding social action rather than predicting dependent variables (Royce, 1995).

The qualitative approach in contrast to the quantitative approach is inductive, reasons from specific to general, does not stress a theoretical base, is context specific, and is used to gain an understanding of social phenomena (see Figure 6-1).

In conclusion Wiersma and Jurs (2009) stress that each approach has value and is relevant in research on improving the delivery of education. However this method can be subjective and prone to interpretation bias for the subject and the interviewee. Furthermore, as situations are dynamic, this may affect research validity and verification (Cornford and Smithson, 2006).

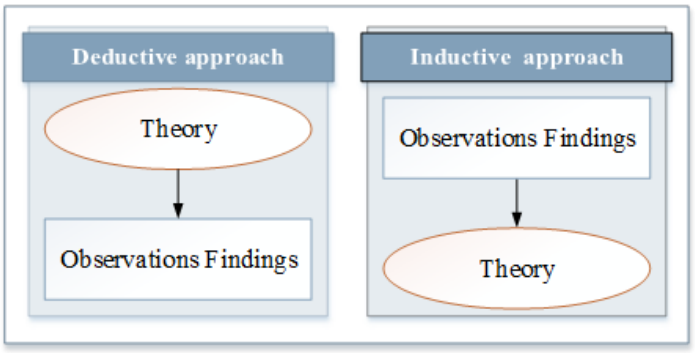


Figure 6-1: Deductive and inductive approaches (Bryman, 2012, p.26)

6.2.3 **Mixed Method**

Amaratunga et al. (2002) propose that combining research methods (quantitative and qualitative) is useful and allows greater insight to be obtained and assists the researcher in determining relationships and drawing conclusions.

Many authors agree that this approach enhances understanding of a topic (Tashakkori and Teddlie, 2010) when more than one method is used to collect data in a study or instrument, or more than one source of data is used to study the same subject, this is known as "triangulation".

Triangulation is "*the use of two or more independent sources of data or data collection methods within one study in order to help ensure that data are telling you what you think they are telling you*" (Saunders *et al.*, 2009, p. 602). Cohen et al (2007) describe triangulation as a "multimethod" approach to conducting research; when the results obtained with two or more different methods are consistent with each other, the researcher can have a higher degree of confidence in the validity of his or her findings. Cohen and Manion (1994) consider triangulation to be appropriate when the aim is to obtain a more holistic insight into educational outcomes.

Generally, it is not practical to conduct qualitative and quantitative research at the same time. Therefore, the research needs to be broken down into distinct phases during which either the qualitative or quantitative approach is used, resulting in a mixed method approach.

6.3 Research Strategy

Research strategy is a "*general plan of how the researcher will go about answering the research question(s)*" (Saunders *et al.*, 2009, p. 600). Yin (2003) argues that there are five main research strategies used to carry out social research: case studies, experiment, surveys, and analysis of archival information (see Table 6-2).

Table 6-2: The advantage and disadvantage of each strategy

Research strategy	Question Type	Control of behaviour	Focus on contemporary events
Case study	How, why & what	No	Yes
Experiment	How & why	Yes	Yes
Survey	Who, what, where, how much & how many	No	Yes
Archival analysis	Who, what, where, how much & how many	No	Yes/No
History	How & why	No	No

Source: (Yin, 2003)

In order to decide the final strategy, three features of the research need to be considered; the type of research questions; the degree of control the researcher has over the behavioral events in the study population and whether the research will focus on contemporary or historic events.

Collis and Hussey (2003) consider that experimental or survey strategies are the most appropriate for the deductive approach, while case studies etc. are most appropriate for the inductive approach. The deductive approach however is the strategy most generally used in business or management research.

Hair et al. (2011) and Saunders *et al.* (2009) describe the survey as the structured collection of data employed to collect primary data from individuals within an extensive population.

This data can be on a variety of features such as opinions, background information (age, gender, education, income, etc.), and provides a relatively simple and straight forward approach to the study of attitudes, values, beliefs, and motives (Robson, 2011).

According to Leedy and Ormrod, (2010) a reasonable amount of data can be collected from a sizeable population efficiently. In this way a survey researcher often uses a sample or smaller group of selected people, but then generalises the result to a larger group from which the sample was chosen (Neuman, 2000). A survey is relatively simple to undertake and the researcher can exert a considerable degree of control over the research process (Sekaran, 2010). Furthermore, as the data collected is standardised, this allows comparisons to be made and statistical analysis carried out more easily (Saunders *et al.*, 2009).

6.4 Research Design

Referring to the Design of Figure 1-1 in Chapter One, the stages, as steps, are explained in the following sequence:

Section (6.4.1): Phase One (Developing Framework)

Section (6.4.2): Phase Two (TQM Framework and Baseline)

Section (6.4.3): Phase Three (CSFs Maturity Assessment Framework)

6.4.1 Phase One: Develop the Initial Framework

6.4.1.1 Step one: reviewing the literature

To develop the initial framework, the literature review conducted into TQM in education considered sixty papers on TQM from the year 2000 onwards (see Appendix D), to investigate the nature of the problems faced and the contributing factors that influence the successful implementation of TQM in the education sector together with the critical success factors and obstacles related to the implementation of TQM in education.

6.4.1.2 Step two: preliminary study

A preliminary study was carried out to understand TQM implementation in Saudi girls' schools and discover if there were other factors that could inform the literature review and update the initial framework to produce a Final Framework.

A preliminary study allows the practical side of the research to be fine-tuned before it is executed. Teijlingen and Hundley (2001) and Thabane et al. (2010) both stress that carrying out a preliminary study is important and that the main study is then more likely to be successful, since the preliminary study indicate any areas where there might be problems with the main research project.

In order to consider what research methods would be most appropriate, the researcher needed to gain sufficient understanding of the background and development of the TQM implementation from the Ministry of Education and headteachers to solicit their views of the existing issues and problems. The results helped the researcher to design the initial framework.

For this research the preliminary study was particularly significant because the preliminary data that are collected always provide guidance on ways to refine the research questions and plans. Before deciding on the most suitable approach, the researcher had to obtain an adequate grasp of the present situation and the current problems and issues associated with the quality of the education system in Riyadh. Thus the study provided helpful experience and feedback for the researcher and also provided data relevant to the research questions.

In this study the data collection methods used were a questionnaire and semi-structured interviews. The preliminary study was conducted by the researcher in June-July 2013 after she had obtained ethical approval from Cranfield University and had received permission from the MOE, Saudi Arabia. The approval from the MOE was obtained following a letter of request which provided information about the researcher's background, the nature of her study and a copy of the questionnaire despatched, which can be seen in Appendix D (E.1 and E.1.1).

The researcher assured the teachers and head teachers that their participation in the survey was voluntary. The questionnaire stated that the information and data obtained would be analysed by the researcher solely for the purpose of this study and the results would not affect any participants in any way. She also assured participants that the final written thesis would ensure anonymity by not using any actual names or identifying the individual characteristics of any participants. Care was taken to ensure that the focus was on areas relevant to the current research project.

6.4.1.2.1 Preliminary study questionnaire

The questionnaire at this stage used closed questions only. The purpose was to assess the level of awareness and understanding of the meaning of quality and TQM from the point of view of teachers and head teachers in two systems of secondary schools, mainstream and course system, in Riyadh. The questionnaire consisted of two parts, one of which dealt with the general profile of the respondents and the other with their understanding of quality and TQM principles.

In order to ensure that the content of the questionnaire was appropriate, a validation review of the questionnaire was undertaken by some educators who work in UK

educational institutions. Following this review, some changes were made to improve its readability and thereby reduce the amount of time needed to complete it.

According to Thabane *et al.* (2010, p. 5), "*... sample size calculations may not be required for some pilot studies. It is however important that the sample for a pilot be representative of the target study population".* In this preliminary study 34 questionnaires were distributed randomly to 10 secondary schools in the two study systems offered by Saudi Arabian girls' schools, mainstream and course system.

From the 34 questionnaires distributed, 29 were returned; some of the responses came from the same educational institution. Three people did not complete significant sections of the survey and therefore had to be eliminated. As a result, the number of valid (completed) questionnaires was 26 (see Appendix E.2, the preliminary study questionnaire in English and Appendix E.2.1 for the Arabic version).

The preliminary study results were uploaded and computed using Excel and the analysis of them is presented in Chapter7.

Table 6-3: The population and sample of the questionnaire (preliminary study)

		Total Number in Riyadh including outskirts	Sample Number	Percentage	Sample Returned	Percentage Returned	Discarded	Sample Used
Mainstream Secondary Schools	Head teachers	327	5	1.5 %	4	80 %	-------	4
	Teachers	8 654	16	0,2 %	14	87,5 %	2	12
Course system Secondary Schools	Head teachers	35	3	9 %	2	67 %	--------	2
	Teachers	904	10	1 %	9	90 %	1	8

6.4.1.2.2 Preliminary study Interview

In order to better understand the current situation regarding TQM implementation, interviews were conducted with two representatives of top management in the MOE. The interview took a semi-structured approach.

Semi-structured interviews were used to allow the interviewees to develop themes and to present comparatively broad answers on the issues and difficulties in the education system in Saudi Arabia.

Some questions were raised to establish the current situation in relation to quality in the girls' schools there, the benefits that could be gained from implementing TQM, obstacles and the representatives' opinion on which CSFs are needed for successful TQM implementation.: There were nine main questions (see Appendix E.3 and E.3.1 for the Arabic version)

The researcher assured respondents that she would analyse the information and data obtained solely for the purposes of this study. She also assured interviewees that the final written thesis would ensure anonymity by not using any actual names or identifying the individual characteristics of any participants.

The interviews were conducted by phone and additional documentary information was supplied by the ministry as an attachment distributed via email.

Table 6-4: Information on the interviews of the preliminary study

Interviews Conducted	Interviewee's Roles and Responsibilities	Mode of contact	Duration of interview
Interviewee 1	Part of the educational quality management department in the MOE. Involved in the quality unit in the King Abdullah project for developing public education	By phone	1 hour and 15 minutes
Interviewee 2	A senior representative member of the team planning quality management strategy for the Kingdom	By phone and email	45 minutes

6.4.1.3 Step three: the initial framework

Identifying the research problem, reviewing the related literature and testing the initial model of factors in the preliminary study made it possible to develop the initial framework further. The purpose of this initial framework was to assess the perceived level of implementation of the CSFs in the secondary schools.

The researcher updated the initial framework to include the factors, variables and obstacles identified from the preliminary study combined with the factors and key elements identified from the literature review. This is described in outline in Figure 6-2 below.

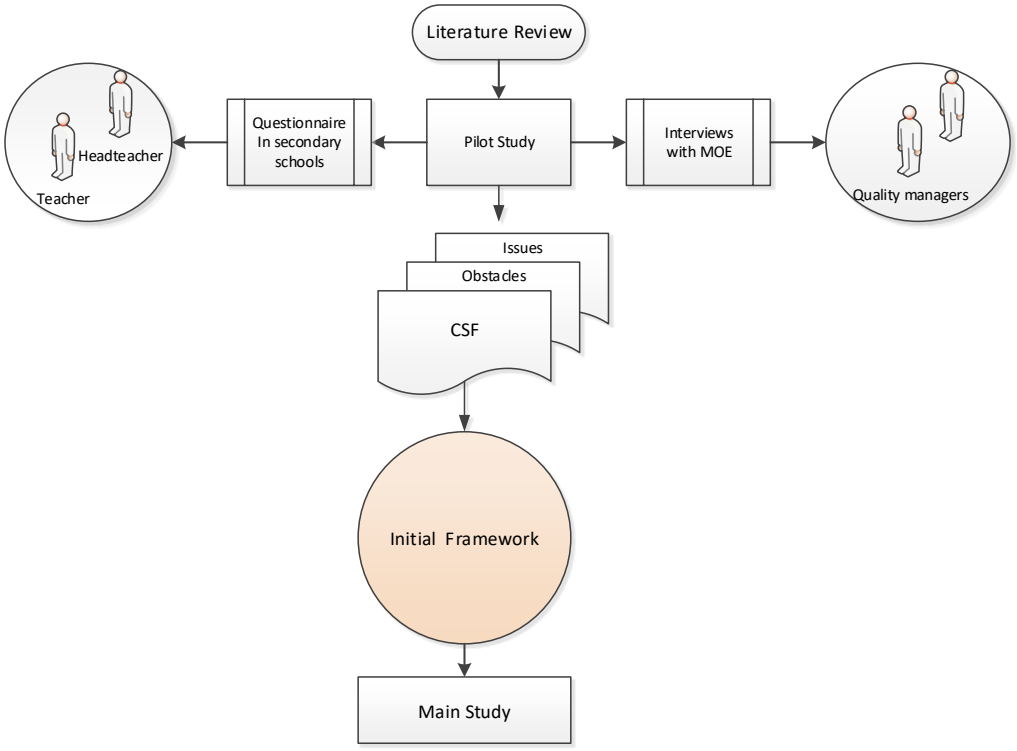


Figure 6-2: An overview of the development of the initial framework.

6.4.2 Phase Two (Step Five): TQM CSFs Framework for Saudi Girls' Schools

The main work of this PhD research is to create a framework of TQM CSFs in Saudi girls' schools, using field data that capture the perceptions of the staff of girls' schools and could be confirmed with the MOE. The result is the TQM Implementation Framework reported in Chapter 8.

6.4.2.1 The baseline questionnaire

The questionnaire content was designed on the basis of the literature review (research from sixty papers related to TQM implementation in the education sector) and the implications of the preliminary study of social culture.

6.4.2.2 The contents of the questionnaire

The final version of the questionnaire had three main parts, excluding the covering letter. It was made up as follows:

Covering letter: The covering letter was designed to:

a. Facilitate access to the schools;

b. Persuade respondents to participate in the research;

c. Outline the research purpose;
d. Reassure participants that the data provided by them would be treated with a high level of confidentiality.

Part One: The purpose of this part was to collect demographic information from the respondents, such as their job title, age, educational level, work experience and number of training courses in TQM that they had taken. In addition, the schools' characteristics were recorded, for example, the location of the school, study system, type of school building, school age and number of employees. From this six factors were identified which would be used as the base filter to determine the influences on the results from Part 2.

Part Two: The purpose here was to assess the perceived level of TQM implementation. This questions comprised 36 statements grouped into seven Critical Success Factors (below) which were identified in the initial framework in Chapter 7.1.2. The CSFs identified in the literature review were adapted to prioritise the interpretations from the Saudi cultural analysis. The respondents' reactions to the 36 statements would give some idea of the principles, practices and processes of TQM as they perceived them and would indicate how far the following Critical Success Factors were being demonstrated:

Top Management Commitment: (1-7)

Involvement and Empowerment: (8-11)

Continuous Professional Development (CPD): (12-15)

Recognition and Reward: (16-19)

Students' Focus: (20-23)

Stakeholders' Focus: (24-27)

Tools and Techniques for Measurement: (28-36).

The questionnaire design used a 5-point Likert scale for the responses. Participants were asked to show how far they agreed or disagreed (strongly agree - agree – uncertain - do not agree - strongly disagree) with a specific statement, designed to obtain information on the level of Total Quality Management implementation in the secondary schools under study. The purpose here was to convert these answers to numeric form which

could easily be treated statistically by giving them the values of 5, 4, 3, 2 and 1 respectively (see Appendix F for the main study questionnaire in English and Appendix F.1. for the Arabic version).

The analysis in this section was based on the arithmetic mean of the responses; this was calculated by comparing a range of cells to the Likert scale (the length of the cells of the scale) as a measurement standard upon which to assess the responses of the subjects. This was calculated in the following way: the upper and lower limits for the cell scale to be determined set the range (5-1 = 4) which was then divided by the number of cells of the scale for the length of the cell proper (4/5 = 0.80). This value was added to the lowest value in the scale (= 1) to determine the upper limit for the first cell. Thus the standard length of the cells was as follows:

Table 6-5: Likert Scale indicating approval of TQM implementation level

Arithmetic average	Degree of approval	Level of TQM Implementation
Strongly Agree	5 - 4.21	High
Agree	4.20 – 3.41	Medium
Uncertain	3.40 – 2.61	Low Medium
Disagree	2.60 – 1.81	Low
Strongly disagree	Less than 1.80	Very Low

Part Three: The questions in this part were addressed focused only to head teachers and the obstacles they perceived as hindering their schools' implementation of TQM. The head teachers (HT) were presented with 17 statements and a ranking scale in which they were required to place their top ten factors in order of the difficulty of putting them into practice in their implementation of total quality management in their school. At the same time the researcher intended to conduct semi-structured interviews with the head teachers to understand what they perceived to be the interdependencies and causal relationships in the obstacles that they had ranked.

6.4.2.3 Translation of the research questionnaire

The questionnaire was originally formulated in English in the UK and then translated into Arabic, the official language of Saudi Arabia. Great care was taken to ensure that the Arabic version had as far as possible the same meaning as the English one.

According to Saunders et al. (2009, p. 385) four techniques can be used when translating questionnaires: direct translation, back translation, parallel translation and

mixed techniques. For the translation of the questionnaire in this research, the parallel method was used.

In this case two or more independent translators translate the source questionnaire. The different versions of the questionnaire are compared and then used to produce a final version.

6.4.2.4 Piloting the questionnaire

Piloting the questionnaire is an important concern in research. Malhotra and Birks (2007) strongly suggest pilot testing a questionnaire before using it to collect data. Saunders et al. (2009, p. 394) observe that:

"*The purpose of the pilot test is to refine the questionnaire so that respondents have no problems in answering the questions and there be no problems in recording the data. In addition, it enable you to obtain some assessment of the questions' validity and likely reliability of the data that be collected".*

The questionnaire pilot tested the face and external construct validity of the questionnaire. Five respondents took part in the pre-pilot study: 2 quality experts, 2 members of the academic staff from local Saudi Arabian universities and a member of staff from a UK university. They made suggestions regarding question wording, layout, design and question content. These suggestions were taken into consideration when a second draft was being formulated.

In this pilot testing of the questionnaire, 120 questionnaires were distributed randomly to five schools to be filled out by head teachers and members of staff. The aim at this stage was to determine if there were any ambiguous questions or questions which could be misunderstood and to obtain any suggestions. 52 responses were returned and none of the respondents proposed any changes, suggesting that the questions were clearly worded and that the questionnaire was not difficult to fill out.

6.4.2.5 Distributing the final questionnaire

The way the questionnaire was distributed: there are two ways to distribute questionnaires to participants (hardcopy or softcopy) to overcome the typical high non-response rate.

First the researcher visited many of the schools and physically distributed the hard copies of the questionnaire. Personally administered questionnaires allow the researcher to facilitate a personal introduction and explain the importance of the study as well as immediately responding at source to the participants' questions and the issues raised.

Combined with the personally administered questionnaires the researcher used an online version of the questionnaire (https://cranfielduniversity.eu.qualtrics.com) which allowed the researcher to increase the distribution and overcome some of the limiting factors by, for example, lowering the costs, increasing the distribution sample and allowing respondents greater flexibility and convenience. In addition, the online method can increase the response rate per question by preventing respondents from progressing to another question until all previous ones have been completed.

However online questionnaires are limited by the fact that they are impersonal, population lists are incomplete and respondents cannot clarify any issues they may have (Robson, 2011). Nonethless, the added use of social media 'friends' can overcome some of even these limitations by facilitating a personal introduction through a network.

6.4.2.6 Questionnaire sample

The aim of the questionnaire was to assess the perceived level of TQM implementation in girls' secondary schools in Riyadh. The target population which comprised the internal stakeholders was made up of the following groups:

1. Head teachers
2. Administrative staff
3. Teachers

The questionnaire was completed by 61 secondary school head teachers.

Table 6-6: The population and sample of the questionnaire

Location	North	West	East	South	Central	Total
Total Public Secondary Schools in Riyadh	21	15	26	20	15	97
Sample Number	16	9	21	13	2	61
Percentage	76%	60%	81%	65%	13%	63%

6.4.2.7 The baseline interviews

Separate interviews were conducted with three representatives of top management in the MOE in order to identify their view of the challenges and obstacles to TQM implementation and the critical factors that might affect its success in Saudi education. The researcher chose to take notes so as to put interviewees at ease and to allow them to express themselves more freely than if the interview had been recorded.

The researcher's face-to-face interviews with the top management in MOE included one with the Head of Inspectorates and with head teachers, to validate the findings made, to understand the broad trends which were semiotically analysed to confirm key themes and issues and, where possible, to collect more in-depth data and observations.

Table 6-7: Summary of interviews held with key officials

	Interviews Conducted	Interviewee Roles and Responsibility	Mode of contact	Duration of interview
MOE	Interviewee 1	Director of Corporate Excellence Administration and General Quality at the Ministry of Education	Face to Face	2 hours
	Interviewee 2	General Director of Educational Supervision	Face to Face	1 hour
	Interviewee 3	Assistant of General Director of Educational Supervision and Manager of comprehensive development of the school components project.	Face to Face	1.5 hours
Schools	Interviewee 4	Head Teachers from Project Abdullah	Face to Face	.5 hour
	Interviewee 5	Head Teachers	Face to Face	.5 hour
	Interviewee 6	Head Teachers	Face to Face	.5 hour
	Interviewee 7	Head Teachers	Face to Face	.5 hour

6.4.2.8 Ethical issues and confidentiality

Issues of access and co-operation were dealt with by means of a routine process. The researcher first applied for an ethical approval letter from Cranfield University which was then sent to the Saudi Arabian Ministry of Education (MOE). After giving its permission, the MOE then distributed the "facilitation task letter" to the schools in Riyadh to allow the researcher to collect the data as she wished. Next, the researcher arranged to proceed with the study using the questionnaire and interviews.

Confidentiality was carefully considered throughout the research and the data collection process. Top management in the MOE, inspectors, head teachers, teachers and administrative staff were informed that confidentiality would be maintained and that no names would be attached to the interviews or questionnaires, thus ensuring anonymity. All the data collected were inserted into an Excel document and safeguarded with a password. All the research data were managed following the Cranfield University policies of Research Ethics and Integrity and Research Data Management.

6.4.2.9 Baseline data analysis

The data collected from the questionnaire were analysed using SPSS (the Statistical Package for Social Sciences).

The analysis in Part 1 applied frequency distribution analysis to the respondents' results to gain insight into the demographic characteristics of the sample of the respondents and the participating schools. The researcher used the following six demographic variables: job titles, location of the school, type of building, study system, education level and years of experience, which were chosen as the base filters to investigate, through hypothesis, whether there were conditional variables significantly influencing the sample respondents' perception of the level of TQM implementation.

The researcher also used a One-Way Anova and T-test to test the hypotheses. One-Way Anova was generally used for testing the difference between three or more groups whilst the T-test was selected for testing the difference between two groups to determine the statistically significant differences between the averages of the respondent groups. Where appropriate, further post hoc tests were applied to gain better insight or clarify differences.

The analysis in Part 2 was based upon the ratings given by respondents; the frequency and percentage for each statement were identified, the mean value for each statement was also determined and a rank order was assigned to each statement according to its mean value.

The analysis in Part 3; here frequency distribution was used to analyse the ranked statements of the 17 obstacles in Part 3. The open ended questions in the third part were translated back into English; however instead of translating the replies verbatim, the

sense of the responses was given in English, since a direct translation of some of the sentences would not have made sense.

For the interviews: a content analysis was undertaken of the notes of each interview to understand the broad trends; these were semiotically analysed to identify key themes and issues.

6.4.2.10 Reliability and validity

It is always important to ensure that the concepts being measured and the measurement tools (questionnaire and interviews) are valid and that the measurements made are reliable in accuracy and consistency.

In order to test the logical validity of the content and the appropriateness of the measurement tools used, the researcher reviewed much of the literature and made a preliminary study to test the relevance of the factors on which the questionnaire was based.

A mixed quantitative and qualitative approach, using a questionnaire with open and closed questions and semi-structured interviews, was taken for triangulation and to obtain congruency (construct validity) in the findings from the questionnaire.

The content of the questionnaires, statements and the use of the ranking scale were examined for face validity in the piloting test of the questionnaire by a panel of representatives with the appropriate expertise.

The sample included three different groups of head teachers, administrative staff and teachers for criterion-related validity for correlation. The questionnaire was personally administered, which allowed the researcher to explain how questions should be answered and clarify any points which were ambiguous or liable to be misunderstood. The questionnaire was also distributed online using social media to supplement the hard copy.

The check for internal consistency of the measurement scale used Cronbach's alpha to evaluate overall reliability during the piloting of the questionnaire discussed above in 6.4.1.2.1.

- The alpha allows an estimate to be obtained of the proportion of total variance which is not a result of error and which represents the reliability of the scale (Oppenheim, 1992).
- The recommended minimum acceptable level of reliability for the alpha is greater than 0.60; however, a value of 0.60 or less generally indicates unsatisfactory reliability or internal consistency (Malhotra, 2007, p. 274). The closer that alpha is to 1, the higher the level of consistency reliability in the correlation coefficient.
- Table 6-8 and 6-7 represent the analysis of the 52 responses returned for the independent and dependent variables using Cronbach's alpha. The Cronbach alpha is 0.97 which demonstrates a high level of positive correlation in the sets of data.

Table 6-8: The reliability coefficient (alpha) of each statement

(Pilot Sample: n=52)

The factor	No.	Corrected Item - Total Correlation	Alpha If Item Deleted	No.	Corrected Item - Total Correlation	Alpha If Item Deleted
Top Management Commitment	1	0.7398	0.9011	5	0.8409	0.8890
	2	0.7118	0.9033	6	0.7491	0.9001
	3	0.7225	0.9024	7	0.5251	0.9212
	4	0.8814	0.8840			
Involvement and Empowerment	8	0.6583	0.8299	10	0.7257	0.8026
	9	0.7712	0.7836	11	0.6459	0.8416
Continuous Professional Development (CPD)	12	0.7001	0.8401	14	0.7235	0.8331
	13	0.7856	0.8050	15	0.6844	0.8495
Recognition and Reward	16	0.7197	0.5518	18	0.6262	0.6211
	17	0.5505	0.6694	19	0.2615	0.8011
Focus on Students	20	0.7836	0.7861	22	0.5961	0.8663
	21	0.8341	0.7653	23	0.6190	0.8537
Focus on Stakeholders	24	0.8342	0.8597	26	0.7848	0.8792
	25	0.6956	0.9097	27	0.8395	0.8577
Tools and Techniques for Measurement	28	0.8301	0.9477	33	0.7130	0.9533
	29	0.7772	0.9503	34	0.7408	0.9521
	30	0.8641	0.9459	35	0.8440	0.9470
	31	0.8916	0.9444	36	0.8152	0.9485
	32	0.8483	0.9469			

Table 6-9: Cronbach's Alpha for the reliability of the factors of survey

(Pilot Sample: n=52)

Factor	No. of Items	Alpha
Top Management Commitment	7	0.91
Involvement and Empowerment	4	0.85
Continuous Professional Development (CPD)	4	0.87
Recognition and Reward	4	0.74
Focus on Students	4	0.86
Stakeholders Focus	4	0.91
Tools and Techniques for Measurement	9	0.95
All items	36	0.97

6.4.3 **Phase Three (Step Six): Developing the CSFs Maturity Assessment Framework**

The final stage of this part of the study was to develop the mechanism to support the MOE and the schools in objectively assessing the level of readiness to implement the TQM Change Programme by evidencing the level of capacity and capability achieved throughout the whole mainstream school system. The result is the CSFs Maturity Assessment Framework reported in Chapter 9. The research process is illustrated by the figure below.

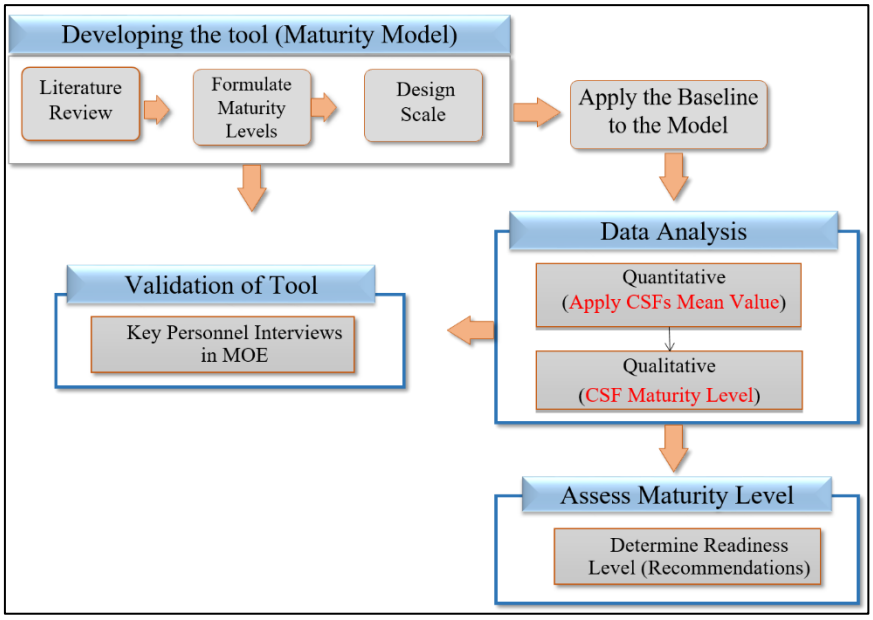


Figure 6-3: Overview of the development of the maturity assessment model

6.4.3.1 Literature review

The scope of the literature review was extended to identify an appropriate tool to measure and assess the level of Readiness to Implement TQM. In order to determine the most appropriate model the review needed to include the effect of culture on organisational development, ways to transform behaviour and the way that the workforce behaves to fit the new culture. The review selected the Capability Maturity Model approach and more specifically the adaptation to workforce development of capability – People CMM, as described in Chapter 5.

6.4.3.2 Formulating the model

In order to demonstrate how the model can be applied in this case study, the researcher decided to develop a generic model that could be used to simulate an assessment of the baseline perception survey. A simplification of the maturity model was developed to fit only the principles, processes and practices included in the questionnaire of the empirical study. The model ascribed generic outputs and attributes using the Capability Assessment Framework as a guideline. The approach is shown graphically in Figure 6-4 below.

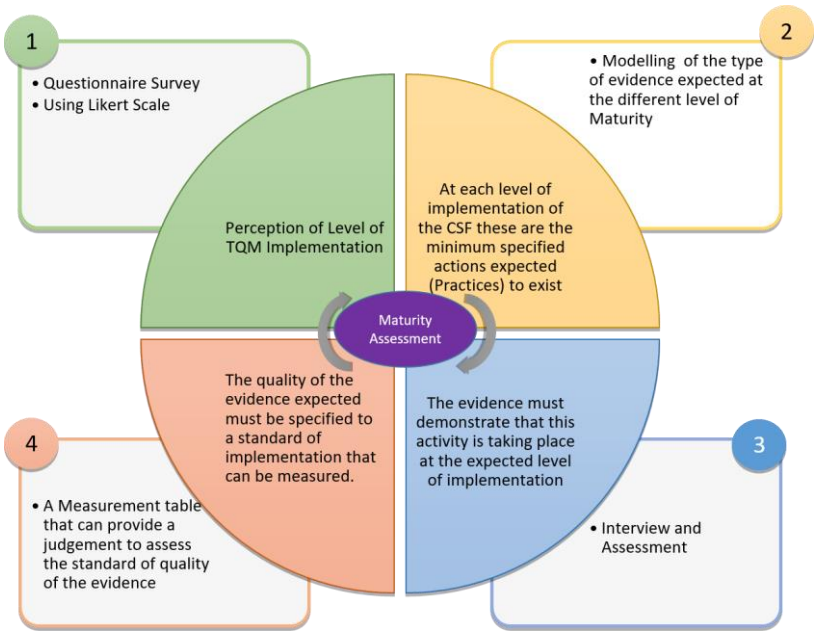


Figure 6-4: Overview of the methodology of the maturity model

6.4.4 Design the Instrumentation Scale

The maturity level measurement scale was adapted to match the Likert scale used in the baseline questionnaire.

6.4.4.1 Apply the baseline to model

6.4.4.1.1 Data analysis

The mean results obtained from the statistical data analysis of the questionnaires was used to compare with the proposed maturity level. This indicated the level of performance and led to a checklist for the type of evidence that is expected at the proposed level of maturity.

6.4.4.1.2 Maturity assessment

The results of the matching mean values to the maturity model scale provides the indicative maturity level. This level indicates the outputs that should be evident and the standard of quality attributable to these outputs. This evidence could be assessed and a maturity level determined. The maturity level identifies what level of readiness to implement TQM exists and what is needed to improve this readiness. The approach is presented in the figure below.

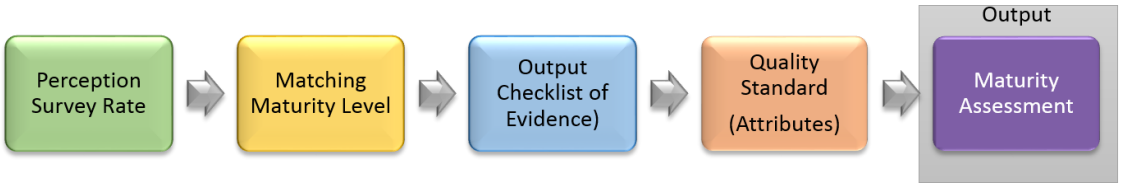


Figure 6-5: Overview of the adaptation of the maturity model

6.4.5 Step Six B: Validation

After the simulated application of the baseline results to the final framework (maturity model) to assess the maturity level, the tool and its application had to be validated by key personnel in the MOE, who know every detail of the MOE's policy and practice.

The purpose of the interviews was to gather the views of the decision-makers of the baseline, and written notes were taken. The aim of these interviews was to ensure that the developed TQM framework model would be appropriate for girls' secondary

schools in Saudi Arabia. It was hope to learn more in the interviews about possible facilitating factors (see the table below).

Table 6-10).

Table 6-10: Summary of Interviews Held with Key Officials for validation

	Interviews Conducted	Interviewee Roles and Responsibility	Mode of contact	Duration of interview
MOE	Interviewee 1	Director for Corporate Excellence Administration and General Quality in the Ministry of Education	Face-to-Face	2 hours
	Interviewee 2	General Director of Educational Supervision	Face-to-Face	1 hour
	Interviewee 3	Assistant General Director for Educational Supervision and Head of Comprehensive Development of the School Components Project.	Face-to-Face	1.5 hour

7 Initial TQM CSFs Framework

This chapter aims to develop the initial framework that was tested for relevance in the preliminary study. First the chapter considers the key factors and the interrelationship between the hard and soft aspects of the CSFs for the development of the initial framework (from the detailed review of the 60 publications about TQM in education –see Chapter 6) to focus on two aspects of TQM implementation – obstacles to it and the nature of the relationship between these obstacles and the CSFs.

Second, the framework was assessed in a preliminary study which sought to gain insight into the current status of TQM implementation in secondary schools. The preliminary study, combining semi-structured interviews and a questionnaire, sought to identify the existing issues in TQM implementation and discover if there were other factors that could inform the literature review and update the initial framework to produce the Final initial Framework. The chapter is divided into four sections:

Section (7. 1): Developing the Initial Framework

Section (7. 2): The Existing TQM Issues in Saudi Education, according to the Ministry interviews

Section (7. 3): The level of Awareness and Understanding of TQM in Girls' Secondary Schools, as revealed in the questionnaire

Section (7. 4): An Overall Summary of the Preliminary Study

Section (7. 5): The Finalising of the initial Framework

7.1 Developing the Initial Framework

The present research in its review of the sixty papers used the method of frequency of most mention to identify the CSFs in the education system. Eight key CSFs were identified, with frequencies of 13% to 73%.

The highest CSF was identified as "top management commitment" (73%), followed by "benchmarking" (63%), "engagement and empowerment" (47%), "stakeholders' focus" (42%), "measurement and reward" (37%), "training" (33%) and "continuous improvement" and "funding and resources" (both below 20%).

An analysis of the hard and soft nature of these critical success factors is presented below, with the frequency of their occurrence (see Figure 7-1).

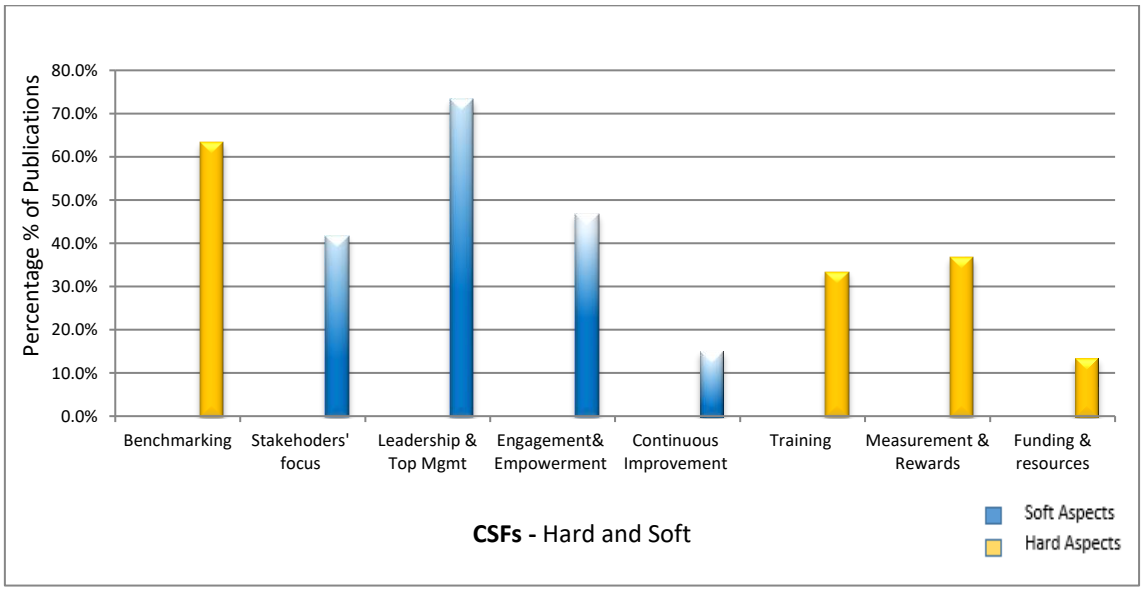


Figure 7-1: Percentage of studies that identified the relevant CSFs in education

This study contends that if these critical success factors are essential inputs a comparative analysis would indicate that the presence of obstacles (outputs) represents either that a critical input is absent or it is present but inadequately managed. This is consistent with the proposition by (Ling *et al.*, 2012), that the barriers and CSFs are interdependent, in other words, according to Ling et al barriers and facilitators, in this case CSFs, are often two sides of the same coin, as depicted in Figure 7-2.

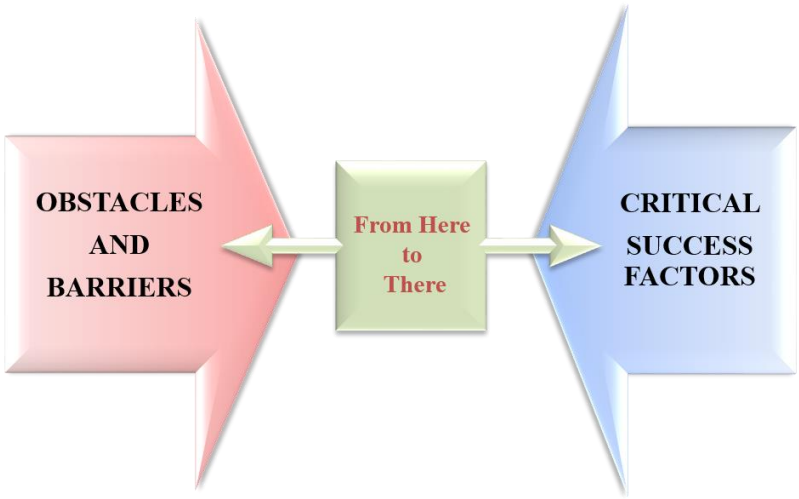


Figure 7-2: The relationship between obstacles and CSFs in TQM implementation

This supposition is applied to the six main obstacles (see Chapter 4) and eight categories of CSFs that have been determined from the systemic literature review, using a straightforward mapping of the existence of the category of obstacles (outputs) and the category of CSFs (inputs), as presented in the figure below.

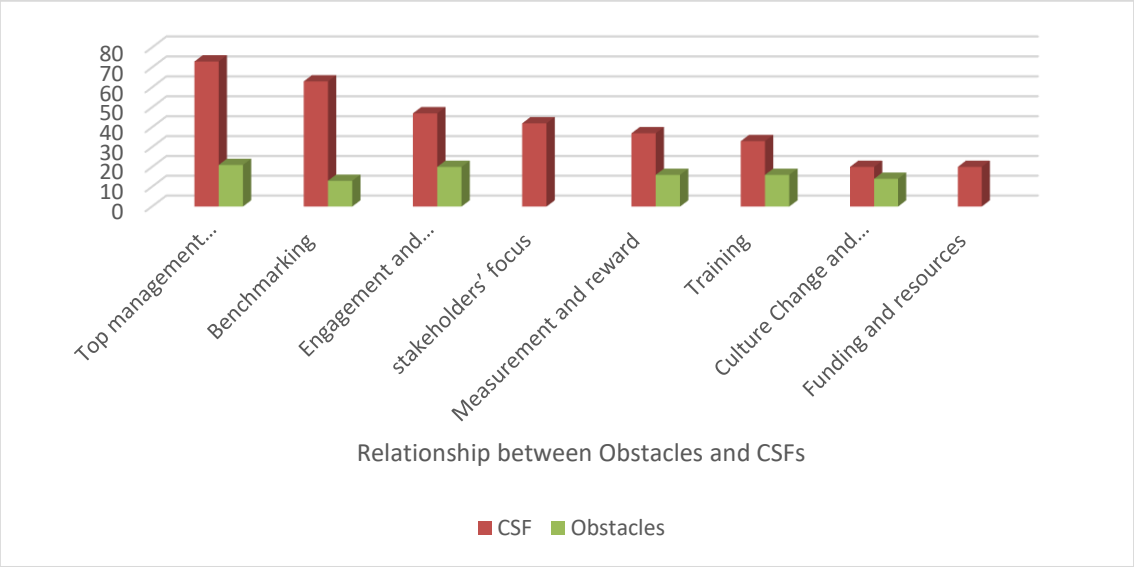


Figure 7-3: Comparing obstacles (Outputs) with CSF (Input)
Based on frequency of occurrence

The figure above shows that there is a relationship between the obstacles and the critical success factors. However, the stakeholder focus and funding and resources are represented in the obstacles grouped under Engagement and Tools and Resources respectively.

7.1.1 **Determination of TQM CSFs**

The research sought to reconcile the CSF findings in the literature with published systematic research in this field. Hietschold, Reinhardt and Gurtner (2014) undertook systematic research to clarify the scattered research on CSFs in the literature across many industries. From an analysis of 511 factors considered critical in the published research, they analysed 145 studies and classified CSFs into 11 distinct groups (dimensions). Each dimension represents a grouping of multiple facets attributed to the respective authors from their researched publications, before reconciling the 8 categories with the 11 dimensions.

The present researcher decided to exclude the environment and social responsibility dimension, because it was, in her view, referenced in only a few studies. The only category of CSFs that did not map directly was Funding and Resources, but this is considered to be the result of quality planning and executive commitment (as indicated in Appendix G).The outcome of the reconciliation means that the 8 CSFs analysed from the sixty papers in education were similar to those determined in several industries.

The last step before finalising the grouping of the CSFs was to integrate Benchmarking into Tools and Resources, on the grounds that most writers refer to it as a measuring tool and finally to exclude cultural change as an independent CSF because it is treated as the result of continuous improvement.

Finally, this study proposes that the obstacles that cause the failure of many attempts to implement TQM fall into 6 main groups. Seven of the CSFs are considered essential. The initial framework proposes that obstacles and CSFs are in fact 'two sides of the same coin'. Each category or dimension of CSFs comprises multiple facets and all these facets are interrelated and interdependent and needs to be implemented systematically. The obstacles represent one or more facets of the CSF that have been either excluded or inadequately implemented.

7.1.2 **The initial framework of the Critical Success Factors**

The initial conceptual framework proposes that the effective implementation of the principles of 7 CSFs can overcome the obstacles. These CSF principles are represented by hard and soft inputs into the TQM processes for managing change. The optimization of the processes and activities needs to be addressed systematically to deal with the interdependencies so as to overcome the obstacles and install the desired practices.

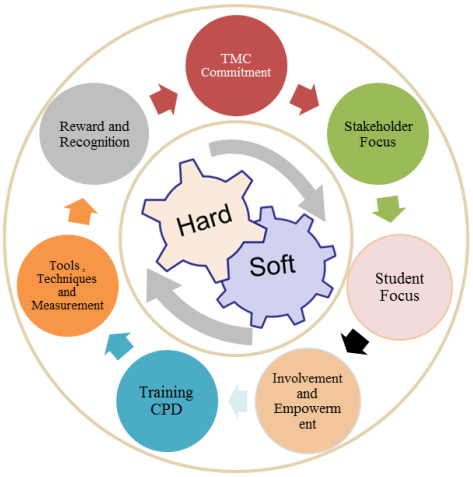


Figure 7-4: Initial conceptual framework

The proposed Principles of the Critical Success Factors are summarised as follows, with reference to their soft and hard aspects.

7.1.2.1 Commitment to TQM

Top Management Commitment and leadership form one of the factors that is considered by authors to have both hard and soft aspects. According to O'Mahony and Garavan (2012), applying TQM can have a broad impact ranging from high levels in the organisation such as strategic planning and decision making, to the level of detailed execution at the front desk, which in the education sector is represented by strategy makers, teachers and also administrative teams. These are considered the hard, systemic aspects of TQM.

However it is essential that the management team understands that implementing TQM requires a continuous developmental process for individuals, groups and the entire organisation, the soft aspects of their attitudes assumptions and behaviours as well as their ability to participate in this process. This means that there must be ongoing, open communication between managers and staff. Clearly, in implementing TQM, the leadership needs to combine the hard (technical, systems and processes) with the soft behavioural (people related) aspects.

Human Resource Management is the key that enables leadership to combine the hard and the soft; it is therefore an essential part of TQM. Yang's rigorous study (2006) of the influence of HRM practices on TQM shows that the selection of HRM practices in the

organisation is key to implementing TQM and that HRM and TQM must be brought together to provide total quality in organisational performance. Dessler, cited by (Sit *et al.*, 2009, p. 962)describes human resource management or development (HRM) as "*the policies and practices one needs to carry out, the 'people' or human resource aspects of a management position including ... training, rewarding and appraisals*". It is an essential part of TQM.

Patel (2013, p. 81) describes the role of the top management: "*Top managers have to take charge personally, lead the process, provide direction, exercise forceful leadership, including dealing with those employees who block improvement and maintain the impetus"*. Management, therefore, must be completely committed to TQM if it is to enthuse the workforce; only then can the workers be expected to follow and embrace a culture of quality at work. Leaders, therefore, need to develop a strategic plan and be prepared to initiate change themselves and make available the necessary resources. TQM involves significant financial and expert resources and does not offer many short-term results. A clear strong vision and long-term planning are essential if the organisation is to sustain the momentum and motivation of the organisation's most valuable resource (Moran and Brightman, 2000; Hultman *et al.*, 2012).

7.1.2.2 Involvement and empowerment

Most TQM experts consider that organisations should encourage all their members to participate in the improvement process. Indeed TQM should be an organisation-wide initiative aimed at creating a quality culture. If there is more active participation, stakeholders lose their negative attitude to implementing TQM.

Hoyle (2009, p. 11) points out that "*people at all levels are the essence of an organisation and their full involvement enables their abilities to be used for the organisation's benefit*". During the organisational goal setting and planning, management should pay special attention to making teachers part of this process. They are involved in the day-to-day operations of the school and therefore intimately understand the issues (Tsang and Antony, 2001; Jamali, Ebrahimi and Ali Abbaszadeh, 2010).

Töremen, Karakus and Yasa (2009) confirm that it is important for schools to draw on the skills and abilities of principals, teachers, students and other stakeholders and allow

all of them to play a role in the quality process; they should take part in the decision-making process as well, to achieve total quality in education. Additionally, they should consider themselves part of the school; however, management should pay special attention to them, as mentioned above (Tsang and Antony, 2001; Jamali, Ebrahimi and Ali Abbaszadeh, 2010). It is this engagement, incorporating the soft aspect of TQM that embeds management's recognition of the value of the stakeholders.

Hoyle (2009) lists the indicators of the close involvement of stakeholders in an organisation:

- Ownership of and responsibility for solutions to problems are taken;
- Opportunities to make improvements are actively sought;
- Opportunities to improve competencies, knowledge and experience are actively sought;
- Knowledge and experience are generously shared in teams as well as in the group;
- Innovation and creativity are used to advance the school's goals.
- Employees feel satisfaction in carrying out their work;
- Employees are enthusiastic about and show pride in belonging to their school.

In sum, as Hoyle indicates, stakeholder and employee involvement thus combines the soft (motivation, enthusiasm, sharing) with the hard aspects (planning, goal setting, objectives).

Empowerment is a further significant aspect of TQM. It is important to provide quality services promptly; 'Empowerment is the ability of an individual or a team in the school to work in their own way in an agreed time and with agreed resources to achieve a goal set by the leadership of the school'.

Deming (1986) stresses that employees must be empowered by vesting them with the authority and autonomy they need to do their jobs properly. Al-Tarawneh and Mubaslat (2011) observe that using only the traditional do-it-to-them evaluation systems results in fear and stifles initiative. The focus is merely on making sure that the boss is kept happy.

According to Patel (2013) empowerment provides an environment where people are in the position and have the confidence and commitment to take responsibility and

ownership. Then they improve processes and implement any changes needed to attain the organisation's goals, which satisfy stakeholders' requirements within clearly-defined boundaries.

A key proviso for the successful implementation of this critical success factor, according to Murgatroyd and Morgan (1994), is that when the leader of the educational institution has clearly established the vision and the goals, empowerment can come into play. Individuals do not determine the goals, but they can be empowered to go about attaining the organisation's goals.

7.1.2.3 Continuous professional development (CPD) learning and training

Talib and Rahman (2010) argue that this is 'an essential part of TQM implementation, especially in services, as it explores the learning aspects of employees about the knowledge of principles and core concept of TQM to achieve desired goals'. CPD extends the application of skills by the ongoing and continuous learning of practitioners in their specialty and field of practice through ongoing updates, professional development and the awareness of new techniques. This is a soft aspect of a soft factor, whose results are not visible or tangible. Training, however, is the perceptible aspect of learning.

Employees must be skilled and knowledgeable if they are to provide high quality services. Baidoun (2003) believes that, for TQM to succeed, it is essential to invest in education and training. Several recent empirical studies indicate that training and education are essential for TQM to be successfully implemented in the education sector (Ngware, Wamukuru and Odebero, 2006; Töremen, Karakus and Yasan, 2009; Sabihaini, Astuti and Abdullah, 2010; Saleki *et al.*, 2012; Patel, 2013; Sahu, Shrivastava and Shrivastava, 2013).

The central aim of training and education is to sustain a high level of quality by using the talents and actions of a school's entire workforce (Talib and Rahman, 2010). Sahu, Shrivastava and Shrivastava (2013) promote the use of TQM-related training programmes for administrative staff, teachers and other stakeholders in educational institutions, which equip them to grasp the concept of the quality management system and their roles and responsibilities in it. This enables them to successfully go through any changes without being unduly disturbed by them.

Quality leaders and educational administrators should ensure that their staff are properly prepared by offering them the training and resources that they need to fulfil their roles in a quality system. Indeed the administrators themselves must first of all be trained (Töremen, Karakus and Yasan, 2009). It costs money to carry out training, but training which is adequate and effective can save schools money in the long run (Bayraktar, Tatoglu and Zaim, 2008; Saleki *et al.*, 2012). According to Sallis (1993, p. 128) "*Staff development can be seen as an essential tool for building the awareness and knowledge of quality. It can be the key strategic change agent for developing the quality culture … it is important in the initial stages of implementation that everybody is trained in the basics of TQM"*.

Training, in this regard, is clearly a hard aspect, a tool that should be considered to work in a continuous process (Ugboro and Obeng, 2000; Jamali, Ebrahimi and Ali Abbaszadeh, 2010; Patel, 2013). Staff should constantly be trained and should receive appropriate training in such areas as TQM principles, team skills and problem solving. Workers from all levels should be trained to cooperate with each other in a spirit which engenders individual initiative, according to Cherkasky, cited in (Agus, 2004). Other areas where employees should be trained are interpersonal skills, job management and performance analysis and improvement skills (Ngware, Wamukuru and Odebero, 2006; Sabihaini, Astuti and Abdullah, 2010).

7.1.2.4 Rewards and recognition

The main rationale for a reward system in a school assumes that it is a technical tool in the management system which can be used to influence employees' behaviour (soft) and persuade staff to work more effectively towards the goals and objectives set. According to Sallis (1993), employees are motivated and encouraged when their achievements and successes are recognised.

TQM specialists consider this principle to be a critical factor at the core of TQM which is put into practice by many TQM organisations. Embedded in this principle is the interdependency of hard and soft aspects. Juran (1989, p. 211) considers that a reward system is key to promoting organisational development. H e writes: "*The reward system not only serves its basic purpose of rewarding human performance; it also serves to*

inform all concerned of the upper managers' priorities. If goals are revised but the reward system is not, the result as viewed by subordinates is conflicting signals. Most subordinates resolve this conflict by following the priorities indicated by the reward system".

The reward system, the hard aspect, has been shown to be effective in bringing about successful TQM implementation. Thus Rahman and Tannock (2005), when researching TQM best practices in Malaysian companies, observed that rewards and recognition systems were significant success factors in TQM implementation. They considered that a staff and team recognition system should be in place which effectively reinforces and encourages preferred behaviour and motivates staff to participate (the soft aspect).

Bayraktar, Tatoglu and Zaim (2008, p. 558) further suggest that "*the recognition of excellence in TQM-related efforts by any employee, department or school should be rewarded as a means of supporting a particular performance level*". It is useful to combine both financial and recognition awards in such a system. Financial rewards for staff can take the form of a prize such as a bonus based on their position and their performance. Saleki et al. (2012) point out that it is not always possible to give monetary rewards; giving rewards can entail a large expenditure which the financial position of the school must underwrite; however a school that wants to develop its processes must address the question. Moreover, employees may be motivated by other things than money: recognition awards of an innovative non-monetary nature, such as paid vacations, time off work, or gift certificates.can also be effective. Indeed, Crosby (1989, p. 11) speaks out against focusing only on the hard aspects, such as monetary rewards, but considers recognition, a softer aspect, to be an important part of TQM. He writes: "*I do not encourage the carrot-and-stick approach. I always thought that was a dumb idea. People are thinking, caring beings and they can tell whether you respect them or not. They work for appreciation and the sense of accomplishment they get from doing the job well. They do not work for money. They need it and it is important, but money is a lousy motivator"*.

When staff in schools feel that the extra effort which they have put in to develop the school is recognised, an atmosphere of teamwork and continuous improvement is created which enables TQM to be successfully practised.

7.1.2.5 Stakeholder focus

The satisfaction of stakeholders beyond doubt plays an integral role in remaining competitive in business. This applies to the field of education also, as can be seen from the way that quality is defined and TQM applied. TQM is a philosophy which strives to offer a template for organisations to use to achieve customer satisfaction and thus success (Ramseook-Munhurrun, Munhurrun and Panchoo, 2011). According to Deming (1986), customer satisfaction is at the heart of TQM's philosophy and implementation.

Töremen, Karakus and Yasan (2009, p. 32) defines the customers in education as "*all the stakeholders in the processes of service, or the ones that are affected by the results of these processes*". Many empirical studies hold that in the education sector, stakeholders are among the main critical success factors (CSFs) (Kanji, Malek and Tambi, 1999; Lam, Poon and Chin, 2008; Pour and Yeshodhara, 2009; Sabihaini, Astuti and Abdullah, 2010; Galavandi *et al.*, 2011; Patel, 2013).

Sallis (1993) believes that it is important to take great pains to cater for the needs and expectations of both internal and external customers. Töremen, Karakus and Yasan (2009) and Johnson (1993) define external stakeholders as the people and institutions outside schools that receive, use or are impacted by the output of the school system. The community in general, parents, the various organisations that school graduates go to work in, industry and government, are all external customers, while the teachers and students in the schools themselves are the internal customers.

Teachers also play a vital role in the delivery of services to the school's customers. Indeed the degree of success of TQM implementation is related to the understanding that employees have of the process as a whole and of the institution's vision (Bayraktar, Tatoglu and Zaim, 2008).

Student focus

In TQM terminology, students are education's main customers (Kanji, 1996; Sahney, Banwet and Karunes, 2004; Sirvanci, 2004; Bayraktar, Tatoglu and Zaim, 2008). It is only possible to establish the requirements of students by communicating closely with them; this means that students must be involved in the design and development of the curriculum. In an effective, student-focused TQM programme, student complaints are recorded and evaluated, course evaluations are carefully taken into account, student club activities are promoted and there is a programme to stay in touch with alumni (Bayraktar, Tatoglu and Zaim, 2008).

To implement TQM in schools, it is essential to identify the stakeholders' specific requirements (a hard aspect). This means that schools must be sure to maintain stakeholder satisfaction (a soft aspect); this can be achieved only by means of long-term planning characterised by a commitment to providing quality services.

7.1.2.6 Tools, techniques and measurement

Murgatroyd and Morgan (1994) argue that TQM uses tools and techniques not for the purpose of measurement as an end in itself (a hard aspect – measurable) but in order to make informed decisions (invoking a softer, intangible aspect). These give the organisation feedback on the achievement of quality and at the same time allow it to plan for ongoing improvement.

According to Zhu (2003), performance evaluation is a very important, even critical tool for organisations, where continuous improvement and customer satisfaction are taken seriously and it is therefore is an essential tool for successful Total Quality Management. The main purpose behind measuring organisational performance is to integrate organisational functions and in turn ensure that enough effort is focused on achieving objectives. Furthermore, this integration of performance evaluation in educational institutions is essential, since it eliminates unproductive and ineffective activities that do not result in stakeholder satisfaction. A definition of performance measurement provided by Bourne *et al.* (2003, p. 3) is that it is something that "*quantifies the efficiency and effectiveness of an action"*. Such a definition considers performance measurement to be an assessment tool for identifying whether the company's activities are enhancing and achieving the objectives and goals of the organisation (Amaratunga and Baldry, 2002).

The operations of educational institutions are mainly based on long-term objectives, such as providing knowledge and research excellence to students to make them employable. This involves teaching techniques, quality teaching and communication with students and value for money (Chen, 2012).

Initially, the school needs to clearly identify its strategic objectives; they should be apparent from its mission statement and long-term goals. The main success factors for the school to achieve its goals must also be identified in order to assign the right criteria to each factor.

The second stage is that the process managers need to gather enough information to be able to make accurate decisions and measure performance effectively. This information includes the availability of financial and human resources (Fryer, Antony and Douglas, 2007). Furthermore, it is very important to obtain data on the requirements and expectations of students and also of teachers (Chen, 2012). This is because their satisfaction is necessary for the organisation to attain its goals. Information about customers/students can be obtained through self-assessment methods, such as a feedback system, questionnaires and a rating system.

The third stage is to agree on measures for the data collected and to identify the criteria for measures. Here it is very important that the organisation finds a suitable performance measurement tool which allows the data to be compared against the criteria of the success factors. There are various kinds of performance evaluation measure, for example, the Balanced Scorecard, Self Assessment, Auditing and Benchmarking.

"Benchmarking is a process of systematically identifying and adapting a partners' "best practices" to improve an organisation's performance and staff's competence ... Benchmarking focuses on the most successful activities, which is why benchmarking is more than competitive analysis" (Schollaert, 2000, p. 54). The advantage of using benchmarking as a tool for measuring performance is that it lets an educational organisation learn from others' experience and success. In addition to this advantage, there are many others, as described by Love and Dale (1999), for instance that its measures enhance an understanding of the best practices and processes in the organisation; it enables organisations to set their goals on a basis of facts and accurate

information; and it promotes constructive and well-supported views rather than view based on assumptions.

In addition, Juran (1986) considers that the outcome of good planning is the ability to ensure that the appropriate measurement tool is used and identified. Performance evaluation and performance measurement tools are essential requirements for gauging accurately the state and performance of the organisation, so that the decisions taken are based on fact.

The initial conceptual framework of 7 CSFs is proposed as the foundation for the research to assess the level of readiness for TQM Implementation. A pilot study can now be undertaken to assess the level of awareness of TQM Principles and the nature of the obstacles experienced in the secondary schools of Saudi Arabia.

7.2 Current TQM Issues from the Results of the Ministry Interviews

The main purpose of these semi-structured interviews with two Education Ministry officials was to find their individual views on the current situation of quality in the girls' schools in Saudi Arabia; what benefits could be gained from implementing TQM; what obstacles had been experienced in implementing TQM and what they thought were the CSFs in TQM implementation that could inform the main study.

Table 7-1: What do you think about the level of quality management in the schools?

The theme	Interviewee 1	Interviewee 2
Level of quality in girls' schools	*The schools have moved to a level of focusing on quality management which didn't exist before.*	*The level of quality management in girls' schools is very low.*
	Through the last two years, they have started to progress gradually in the quality management system though they haven't made the required qualitative progress.	
	They're still in the stage of spreading the quality culture and putting into practice some simple applications of quality in certain schools.	*The quality culture in schools is very weak.**
	We can't judge the quality practices in these schools until we see the impact of these practises in actual, realistic terms.	
	There is an award called the Education Award for Excellence which has encouraged some schools to improve the quality culture in their schools.	√

Interviewee 1 stated that:

"*It is difficult to answer this question accurately because our schools haven't any specific standards and tools so we can't judge the level of quality in the schools clearly*".

Interview 2 explained the reason for the weakness in quality culture in schools; it was "*because there is no special organisation responsible for disseminating a culture of quality in the schools in SA".*

Table 7-2: Do you measure the level of quality in schools?

The theme	Interviewee 1	Interviewee 2
Methods of measurement	*For the last ten years there has been a general administrative system in the MOE called 'comprehensive assessment' which is linked to the Italian OFSTED.**	*There are no standards in the schools, so the level of quality in schools cannot be measured as there are no criteria or performance indicators whether for curriculum, teacher, student…etc.**
	It was replaced by self-assessment in all schools.	

Regarding 'comprehensive assessment' and self-assessment, Interviewee 1 stated:

"Comprehensive assessment used to have a significant role in the evaluation of the schools' performance, but in recent years it was stopped because the reports weren't clear and it played no effective role in the schools, for various reasons. However, self-assessment is similar to comprehensive assessment but schools do it themselves. It uses tools and forms, etc. It isn't issued by quality management in the MOE, but is issued by the Department of Tests."

Interviewee 2 stated that:

"to achieve any success there must be performance indicators so that we can measure this success, but unfortunately these do not exist in our schools in SA".

Table 7-3: Are there criteria for TQM implementation in schools?

The theme	Interviewee 1	Interviewee 2
TQM criteria in schools	*So far, there are no certified standards.*	√
	*The only criteria we have are the ones for the Education Excellence Award (a local award).**	*Only a few schools have begun to apply ISO 9001.*
	There is a King Abdullah project for developing general education in his own schools and with his own criteria.	
	*There are international awards such as the King Abdulaziz Award (SA), the Muhamad bin Rashed Award (UAE) and the Hamdan Award (UAE).**	√

Interviewee 1 described the Education Excellence Award (a local award):

'It was established in 2011. It is optional, not compulsory, but all schools throughout the Kingdom can participate in it. It includes four categories of criteria:

- *Award criteria for management and school excellence*
- *Award criteria for teachers*
- *Award criteria for educational supervisors*
- *Award criteria for student advisors.'*

Interviewees 1 and 2 agreed that: *'The education sector was included in the King Abdullaziz Award scheme recently in 2012. However, no schools so far have participated in this competition because of the heavy demands made on the schools by the award.'*

Table 7-4: What are the benefits of implementing TQM in schools in SA?

The theme	Interviewee 1	Interviewee 2	Literature Review
The benefits implementing TQM	Excellence in educational outcomes.	√	√
		Meets the needs of the labour market.*	
	Ensures performance quality for everyone in the school.		
	Reduces the number of mistakes.*	√	√
	Enhances the reputation of \ schools.		√
	Clarity of performance indicators.	√	
	√	Goals achieved by means of strategic planning.	√
		Services improved by means of the continuous improvement of processes.	`√
	Improved motivation among and involvement of teachers and other staff.	√	√
	√	Increase in competitive advantage.	√

Table 7-4 shows the perception of top management in the MOE about the benefits which can be gained from the implementation of TQM in schools. Interviewee 2 stated that:

'If TQM is applied correctly, the educational output meet the needs of the labour market. One of the most important criteria of TQM is whether it 'meet the requirements and needs of the stakeholders'. This needs good communication between educational institutions and the stakeholders. Unfortunately, this problem is found in the education sector in Saudi Arabia.'

According to Zabadi (2013), if educational institutions adopted TQM, it would allow them to remain competitive, would eradicate inefficiency in schools, help them to concentrate on market needs, reach high standards of performance in all areas and fulfil the requirements of all stakeholders.

Other benefits of embedding TQM in schools which were mentioned by Interviewee 1 were *'reducing the number of mistakes because of the existence of clear systems and procedures so that everybody in the schools knows his or her role*.

Tasar and Celik (2011) consider that TQE has been important and helps principals, teachers, students and other stakeholders in the school system to be more aware of their roles.

Table 7-5: What are the obstacles to achieving TQM in girls' schools in SA?

The theme	Interviewee 1	Interviewee 2	Literature Review
Obstacles to achieving TQM	Lack of adequate knowledge and understanding of the concept of TQM in schools.	√	√
		Employees' resistance to change.	√
	Poor understanding by leaders and officials of the benefits of applying TQM.		√
	Inconvenient writing processes and procedures.		
	Excessive urgency to reap the benefits of TQM application.		√
	Lack of statistical programs to analyse complaints and suggestions.	Lack of realistic databases	√
		Lack of sufficient resources.	√
	Training does not reach the required level (real needs).	√	√
	Lack of research in the area of quality in education in SA.	√	
		Absence of schools that implement TQM and can represent a role model.*	√
	Lack of incentives and rewards or encouragement for creativity and innovation for workers.	√	√
	Lack of communication.*	√	√
		Headteachers do not have control over the input.*	√
	Some schools just focus on getting the certification and not the actual application.*	√	√
	Lack of proper leadership and management commitment	√	√
	Lack of manager and staff empowerment	√	√
	Large number of students in the classroom	√	

'There is no communication between universities and schools. Head teachers cannot directly cooperate and associate with universities to arrange to have an adviser in their

school from the university. This cannot be done without the consent of the MOE, which would involve long and complicated procedures'.

Another obstacle, as shown in the previous table, is the absence of schools that implement TQM and that act as role models (benchmarking). Interviewee 2 stated:

'There are some private schools which have good practices in their quality system although they don't achieve the required level that we seek. However, we can't consider the private schools role models because public schools do not have as many resources as private schools. Originally public schools were supposed to be better than private schools because of the support which they received from the government'.

Regarding the school's input, Interviewee 2 stated that:

'Head teachers don't have the ability to control a school's inputs. The head teacher cannot select the teachers, the students or the administrators. All these inputs are imposed on the school; if these inputs are poor, they affect the application of quality negatively'.

Sahney et al. (2004) describe TQM as multifaceted and assert that the quality of inputs can be seen in students, teachers, auxiliary staff and infrastructure.

One of the obstacles which was mentioned by Interviewee 1 is that some schools focus only on getting the certification, not on the actual application of quality management. Zabadi (2013) considers that TQM remains a mere slogan and has not been applied properly or effectively, even though it has been successfully implemented in many educational institutions in Arab countries.

Table 7-6: How might these problems be overcome?

The theme	Interviewee 1	Interviewee 2
Solutions	*Holding conferences and seminars and implementing their recommendations in schools.*	√
	Changes have been inspired by King Abdullah's vision, which is that by 2030 the Kingdom of Saudi Arabia become a model society in terms of the quality, efficiency and productivity in all sectors.	√
		Spreading quality culture in schools through the media.

Interviewee 1 stated when answering this question that:

'So far, the problems which are facing schools and education departments have not been specified and have not been seriously taken into consideration. It is difficult to determine how to overcome these obstacles before defining the problems. Therefore, several stages should be passed through in a scientific study. First, the problems should be defined or

determined. Then the reasons which lead to these problems should be sought. Finally, the solution should be found.

'Basically, the research has not yet passed through the first stage so I am unable to provide any solution'.

Table 7-7: What do you consider the most important CSFs of TQM?

The theme	Interviewee 1	Interviewee 2	Literature Review
CSFs for TQM implementation in schools	Top management commitment to TQM.	√	√
	Suitable training programmes,	√	√
	Quality awards, reward and recognition	√	√
	Role models have shown practices and practical applications in TQM (Benchmarking).*		√
	Involvement and Empowerment, Communication	√	√
	Tools and Techniques	√	√
	Existence of criteria and performance indicators (measurement).	√	√
	Focus on stakeholders and students	√	√

Table 7-8: What are your aspirations for education in Saudi Arabia?

The theme	Interviewee 1	Interviewee 2
The interviewees' aspirations	Achieve the vision of the Custodian of the Two Holy Mosques.	Focus on market needs.
	Educate a new generation to graduate level with the mental capacity and knowledge to be able to serve and develop this country.	√
	Have a clear and strong strategy in education.	√
	Transition from receiving knowledge to producing knowledge.	
	Have an external body which is responsible for establishing comprehensive criteria and indicators for schools in all parts of the Kingdom.*	
	Unify the quality systems in all schools in SA.	

One of Interviewee 1's aspirations is:

'The wish to have a neutral third party such as an accreditation body with the following responsibilities:

Establish comprehensive standards for schools.

Identify the best schools and classify them into categories and levels to indicate whether these schools are applying the quality standards or not. Using obvious school performance indicators, this accreditation body would be able to evaluate and judge these schools

Announce the schools' evaluation results (their classification, strengths and weaknesses) to the public. Parents should be able to know the level of performance and quality of schools in terms of teachers, administrative staff and buildings, etc. because they should have the right to choose their children's public schools as they can the private schools. The transfer of the student after each educational stage from one school to another should not take place automatically without any consideration of the stakeholders' opinions about public schools'.

7.2.1 **Summary of the interview findings**

The findings of the interview analysis can be summarised as follows:

Although the MOE has taken several steps to improve general education in the Kingdom, there are significant issues facing the Saudi education system:

- The level of quality in girls' schools is very low: schools are still at the stage where news about the quality culture is spreading, with little focus on stakeholders.
- There are no mandatory standards or specific criteria for TQM in the schools, so without performance indicators the quality in schools cannot be measured. Although the voluntary Education Award for Excellence has encouraged some schools to improve the quality culture, there are no role models to benchmark against. Generally the quality culture is weak; this is demonstrated by the lack of schools competing for the King Abdul Aziz Quality Award introduced for general education. The standard is too high.
- There are several major obstacles to the progress of TQM Implementation. These obstacles indicate that awareness of TQM is still at an early stage, with little focus on continuous improvement. The main obstacles are lack of leadership and management commitment; inadequate knowledge of TQM and its benefits; a lack of training, measurements and rewards; and therefore a lack of commitment to TQM. Furthermore, there are no standard criteria, no information database, statistical analysis or tools, such as benchmarking role models, to measure progress or manage communication, which makes it difficult to involve stakeholders.

- There are many CSFs that are recognised as being necessary for successful TQM implementation in schools, but there is no standardized mechanism for introduce them into the school systems.

- "*Finally, one significant obstacle facing the implementation of TQM in education in SA is the lack of research in the area of quality. This research could help resolve some fundamental issues encountered by schools when attempting to implement TQM*".

7.3 Level of Awareness and Understanding of TQM in Girls' Secondary Schools: the Questionnaire Findings

The questionnaire was used to survey the level of awareness; the head teachers and teachers own understanding of quality and the state of TQM implementation in their schools.

Two types of school were examined, mainstream and course system (developed) schools. The latter group has recently been introduced by the government in order to implement modern academic and management systems.

Data were collected from headteachers and teachers through a closed item questionnaire. 34 questionnaires were distributed randomly to 10 secondary schools. The locations of these schools covered most districts of iyadh (see Appendix E.2, the preliminary study questionnaire in English and Appendix E.2.1 for the Arabic version). The following section presents only a summary of the findings.

The first question asked 'How do you define quality with regard to your job?

The findings indicate that the teachers in both types of secondary school and the headteachers in the mainstream secondary schools stress the hard or tangible side of quality, for example, a "high standard of service" which is accessed using an accreditation process. For them, the soft or intangible aspects of quality, for example relationships with customers and keeping customers happy, scored lowest. However, headteachers in the developed secondary schools considered 'keeping students happy' first and 'relationship with students' second in importance as indicators of quality. This shows the distinct difference of interpretation of 'quality' in the two types of school.

Additionally, only the course study system respondents, both headteachers and teachers, recognised that quality is a multi-faceted aspect and that there are interdependencies between "speed of service", "standards" "keeping the students happy" and "maintaining good relationships between the students and the teachers". The results indicate that these respondents consider all these factors to be almost equally important. However, in mainstream respondents there is a lack of clarity about the intended meaning of quality in relation to TQM.

From the results of this question it became apparent that the nature of the study system in the school is linked with the opinions of the respondents. Therefore, this research investigates this link further in the main study.

The second question was 'What do you consider to be TQM principles?'

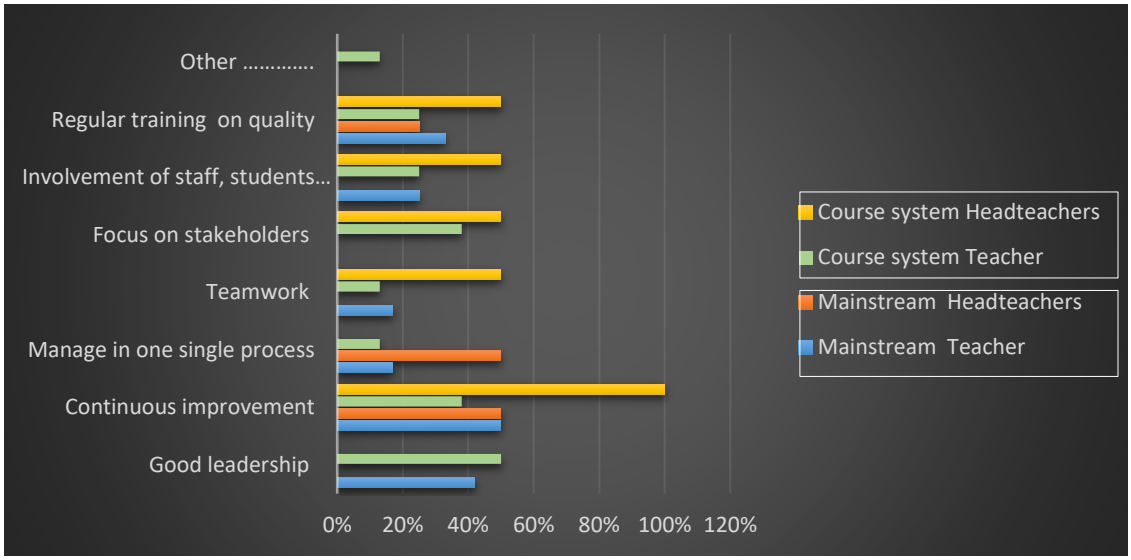


Figure 7-5: What do you consider to be TQM principles

The figure above demonstrates that the concept of "continuous improvement" is recognised by all respondents. More course study headteachers than mainstream head teachers consider this to be the most important critical factor of all, although fewer course study teachers agree.

Training is the next most recognised concept. The course study headteachers consider this more significant than any other group of respondents does. More mainstream teachers perceive it than do mainstream headteachers or course study teachers.

Involvement of the stakeholders is recognised as the next most important by all the respondents except the mainstream headteachers who do not consider this factor at all.

Focus on stakeholders and teamwork is only recognised by the course study respondents. Training, however, is considered as important by all respondents.

All teachers in both types of school recognised "good leadership" to be one of the most important principles. However none of the headteachers rated this as important.

Only the mainstream headteachers considered that TQM should be 'managed in one process' as did a small representation of the teachers. 10% of the course study teachers mentioned other CSFs such as reward as being important.

The findings from these questions of the preliminary study indicate that there is a general level of awareness of some of the main principles or Critical Success Factors. The mainstream headteachers appear to consider a narrow range of measurable and tangible CSFs such as continuous improvement, regular training and managing in a single process, whereas the teachers seem to adopt a broader perspective.

The course study headteachers consider a much wider range of CSFs as being important and appear to recognise the intangible, softer CSFs, involvement and engagement of stakeholders. However not all headteachers recognise the need for good leadership. In the next chapter the researcher aims to investigate in more detail how well these CSFs are being implemented.

The **third question** was 'Who do you think is responsible for achieving TQM?'

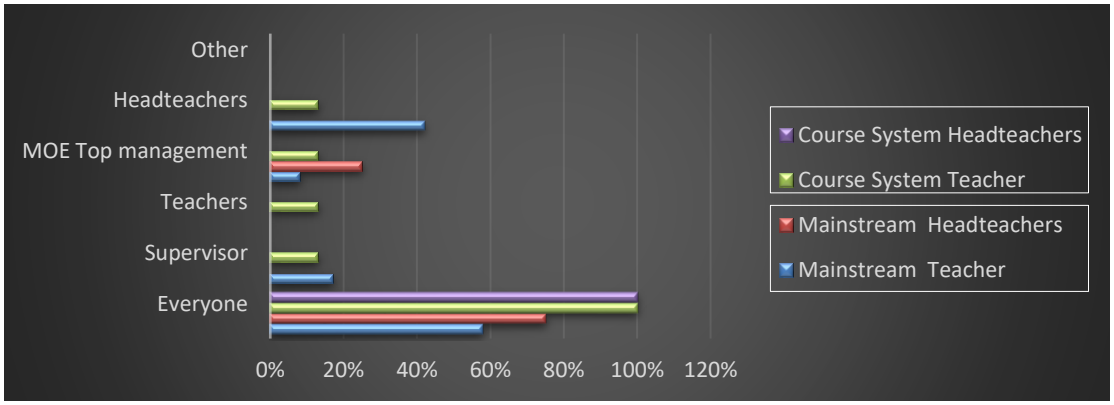


Figure 7-6: Who do you think is responsible for achieving TQM?

Figure 7-6 illustrates that all the respondents agree that everyone should be responsible for or should have a role in achieving TQM;, although the course study respondents rate this more highly than the mainstream respondents do.

Only the teachers perceived that that this should be the job of the headteacher, whereas none of the headteachers considered this relevant. Additionally, a small representation of teachers and mainstream head teachers perceived it to be the job of top management in the MOE.

Furthermore, only the teachers in the course study system recognised that teachers themselves have a responsibility to TQM and they were also the only respondents to recognise that all the identified groups had some responsibility for TQM.

This indicates there is relatively low recognition of responsibility and accountability. The fact that "everyone is responsible" indicates that they feel there is "no one to blame" i.e. that clear accountability for the implementation is not being taken yet**.**

The fourth asked 'Do you know the purpose of TQM'? The results indicate that all the respondents indicated either 'Yes' or 'I don't know'. Their results are summarised and presented in the figure below

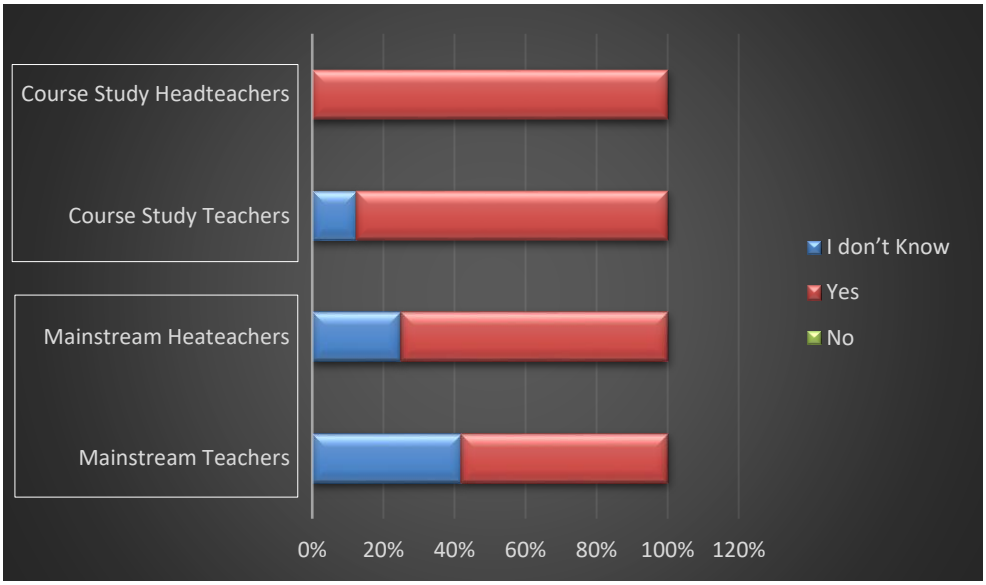


Figure 7-7: Do you know the purpose of TQM

Figure 7-7 indicates that the course study respondents are more confident than the mainstream respondents that they know the purpose of TQM.

Question five asked 'Has your school implemented/planned TQM in the workplace?

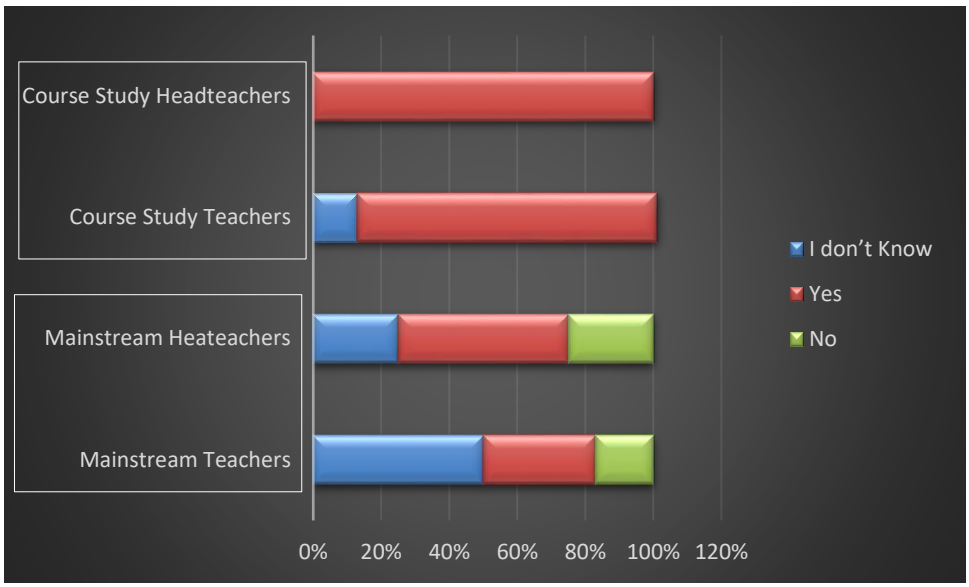


Figure 7-8: Has your school implemented/planned TQM in the workplace?

The figure above indicates that the course study respondents have made more progress in implementing TQM. While only 50% of mainstream headteachers and 33% of teachers have a level of confidence, 42% of mainstream respondents state that no implementation of TQM has taken place.

Question six asked "Is your supervisor an active supporter of TQM in the workplace"?

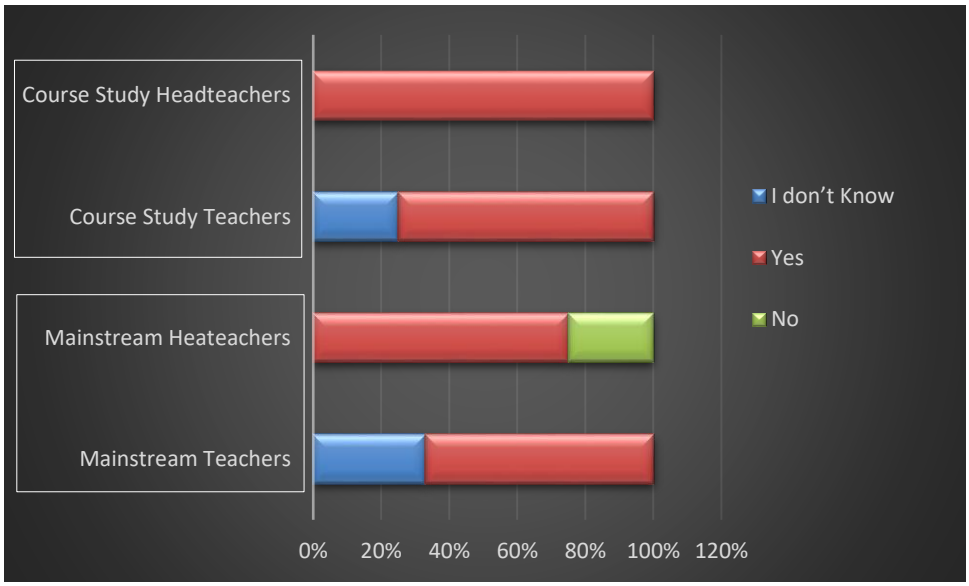


Figure 7-9: Is your supervisor an active supporter of TQM in the workplace?

All the course study headteachers and 75% of teachers agreed that their supervisor was actively supporting the implementation. 75% of mainstream respondents agreed, however 25% specifically disagreed. Most teachers in mainstream schools were confident of their supervisor's support.

All the findings from questions 4, 5 and 6 in both types of school are summarised in the figure below.

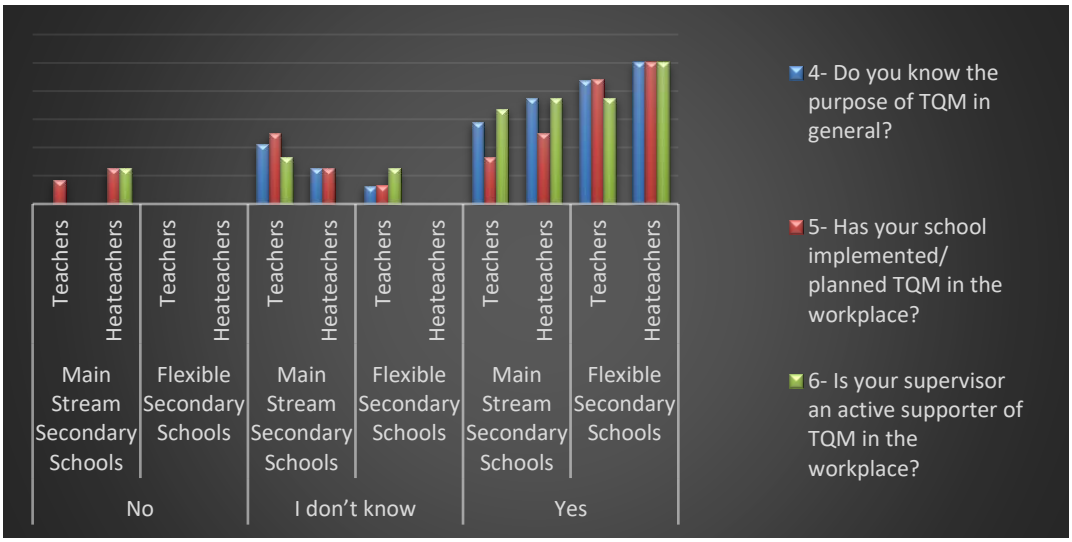


Figure 7-10: Level of confidence in TQM implementation

There is a much higher distribution of Yes by the respondents to all three questions related to TQM implementation. This indicates that there is a general awareness of TQM and its implementation. There is a smaller distribution of responses that indicate some uncertainty or confusion. There is a small distribution of responses that clearly indicate that there is either no implementation or support for implementation at the respondent's school.

7.4 Overall Summary of the Preliminary Study

The input of the conclusions from the interviews in the preliminary study confirmed that there are several major obstacles to the progress of TQM implementation. These obstacles indicate that TQM is still at an early stage of awareness with little focus on continuous improvement. The main obstacles are inadequate knowledge of TQM and its benefits, a lack of training, measurements and rewards and hence commitment to TQM. Furthermore, there are no standard criteria, information database, statistical analysis or

tools, such as benchmarking role models, to measure progress or manage communication, which makes it hard to involve stakeholders. The interviews confirmed that one of the most significant obstacles is the lack of leadership and commitment regarding TQM.

The input of the conclusions from the survey clarified the context of the issues. The nature of the study system appears to influence the opinions of the respondents, in that the course study system produced more positive responses than the mainstream. Additionally the course study respondents were more aware of the need to include the softer aspects of TQM with the harder ones. Furthermore headteachers were more informed about TQM than teachers. Some level of awareness of TQM exists in most secondary schools, but not all have started to implement it.

From these findings, the main study investigates in the next chapter how well the TQM CSFs are being implemented and then goes on to examine the significance of the effect of obstacles and influencing variables, such as the course study system, roles (job title) and additional related factors, such as years of experience with CSF implementation.

7.5 Finalising the initial Framework

The key success factors addressing change management come from the initial TQM framework suggested by the literature review (see section 7.1.2). The issues arising from the preliminary study were combined into the proposed initial TQM framework so that the MOE could finalise the TQM framework for use in the main study.

The combined research has indicated that, if the benefit of the TQM philosophy is to be realised, the principles of TQM have to become embedded through the continuous improvement of the processes and practices of seven critical success factors; management commitment toward TQM, focus on stakeholders, student focus, involvement and empowerment, training and education, rewards and tools and techniques for measurement.

This can be represented by the following diagram.

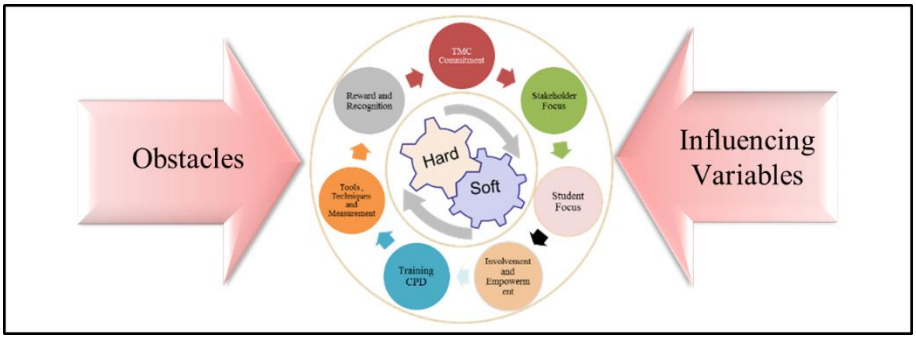


Figure 7-11: Final framework

The proposed initial Framework therefore posits that to overcome the major obstacles both the hard and soft aspects of the most important critical success factors must be integrated and that, if the CSFs are implemented systematically in a coordinated manner progressively to promote the development of skills, engagement and work climate, a change in culture result.

8 TQM Implementation Framework (Baseline)

This chapter examines the perceived level of progress in TQM implementation in girls' high schools in Riyadh, Saudi Arabia. The preliminary study indicated that the TQM CSFs had reached an early stage of implementation in these schools and the main study asks a) how well these TQM CSF processes have been implemented in the form of practices and b) how great has been the impact of obstacles and influencing variables on the TQM implementation.

A questionnaire was used to obtain a profile of the characteristics of the internal stakeholders' (headteachers, teachers and administrative staff) before investigating their perceptions and attitudes regarding TQM implementation in their schools. Three stakeholder groups were included in order to reduce the possibility of bias from representing too few perspectives. It would also reduce researcher bias attributable to her personal experience. Moreover, the data were also analysed to explore the influence of six variables on the participants' perceptions of TQM implementation. Furthermore, in order to gather deeper information about the implementation, a questionnaire for semi-structured interviews, held during the last phase of the research, also investigates the headteachers' perception of the obstacles to such implementation. To present the results of the questionnaire, this chapter is divided into seven sections using the data collection methodology that was reported in the Research Method chapter. The analysis and interpretation of the results follow, before the final recommendations are offered.

Section (8. 1): The **Response Analysis** of the distributed questionnaire.

Section (8. 2): Part One: the demographic information of the sample.

Section (8. 3): Part Two: the perception of the level of TQM implementation in girls' secondary schools in Riyadh

Section (8. 4): Part Three: the possibility of contextual variables influencing the perceptions obtained from Part Two.

Section (8. 5): Part Four: the factors which might hinder the implementation of TQM.

Section (8. 6): Analysis and interpretation.

Section (8. 7): Recommendations.

8.1 Response Analysis

There were 525 respondents to the questionnaire. The sample population is described in the following tables. Table 8-1 presents the proportion of schools which was sampled in the five regions of Riyadh, Saudi Arabia.

Table 8-1: The population and sample of the questionnaire (main study)

Location	North	West	East	South	Central	Total
Total public secondary schools in Riyadh	21	15	26	20	15	97
Sample number	16	9	21	13	2	61
Percentage	76%	60%	81%	65%	13%	63%

Table 5-1 indicates that the study sample represents 63% of all the public schools in Riyadh, with representatives from all five regions, although Central Riyadh has the lowest proportion, 13%.

The researcher distributed the questionnaire in two ways: as a hard copy hand-out and online. Table 8-2 presents the response rate from the paper version of the questionnaire by location of schools and Table 8-3 presents the response rate from the online method.

Table 8-2: Paper questionnaire results

	Location	North	West	East	South	Central	Total
Paper Questionnaire	Total number of public secondary schools in Riyadh	21	15	26	20	15	97
	Number of schools visited	10	6	15	8	5	44
	Schools which responded	9	4	10	3	1	27
	Response rate from the sample of schools	60%	50%	71%	30%	20%	52%
	Response rate based on total number of schools	43%	27%	38%	15%	7%	28%
	Number of paper questionnaires physically distributed (25 questionnaire to each school)	250	150	375	200	125	1100
	Number of responses	144	44	125	25	0	338
	Completions (%)	58%	29%	33%	13%	0%	30.7%
	Discarded (%)	42%	71%	67%	88%	100%	69 %

Table 8-3: Response rate for the survey completed online by the schools' location

Online Questionnaire	Number of questionnaires distributed	576
	Total responses started	562
	Discarded	14
	Dropout rate	67%
	Completions	187
	Completions as % of total responses started	33%

	Location	North	West	East	South	Central	Total
	Total number of public secondary schools in Riyadh	21	15	26	20	15	97
	Schools participating (headteachers)	5	5	11	10	3	34
	Participation %	24%	33%	42%	50%	20%	35%
	Completed responses	39	22	75	40	11	187

The table below shows the analysis of the respondents by position and location.

Table 8-4: Distribution of the main study sample by position and location

	Location	North	West	East	South	Central	Total
Position by Location	Total number of public secondary schools in Riyadh	21	15	26	20	15	97
	Headteachers/Schools	16	9	21	13	2	61
	Teachers	155	52	166	44	6	423
	Administrative staff	12	5	13	8	3	41
	Total Respondents (Paper & Online)	183	66	200	65	11	525

The table above indicates that 61 headteachers out of 97, which is 59.1% of the total headteacher population, responded.

Table 8-5 presents the analysis of the two study systems represented in the sample by location.

Table 8-5: Distribution the study sample according to the schools' location

Location		North	West	East	South	Central	Total
Type of Study System by Location	Mainstream system	108	36	123	49	9	325
	Course system	75	30	77	16	2	200
	Total Response	183	66	200	65	11	525

Based on the response analysis above, the researcher considers that this is a representative sample of the population and therefore has a high level of confidence that the perceptions given by this sample can be considered reasonably representative of the population as a whole.

8.2 Part One: Demographic Analysis

The primary purpose of this section is to describe the characteristics of those of the sample who completed the survey: headteachers, teachers and administrative staff in girls' secondary schools in Riyadh. The results from the analysis of the demographic factors can provide a better understanding and insight into the context and background of the

respondents and develop a profile of the common and/or relevant characteristics of the sample population in the study of girls' secondary schools in the city.

The analysis in this section applied frequency distribution analysis to the respondent's results to gain insights into the demographic characteristics of the sample of respondents and the participating schools.

The characteristics are presented in two dimensions: those of the respondents (position, age, education level, years of experience and number of TQM training sessions attended) and second those that relate directly to the school (location of the school and type of building and study system).

8.2.1 General characteristics of the sample

The five main groups of characteristics identified in the sample of the respondents are presented in the following tables.

8.2.1.1 Position in the school

Table 8-6: Distribution of study sample according to their position in the school

Position in the school	Frequency	Percent
Teacher	423	80.6
Administrative staff	41	7.8
Headteacher	61	11.6
Total	525	100.0

Table 8-6 shows that 80.6 % of the total participants were teachers and nearly 12% were headteachers, who are in the best position to judge the quality initiatives in their schools and the extent to which they consider them to be successful or not. The rest were the administrative staff. This result seems reasonable, since the total number of teachers make up approximately 80% of the sample population compared with the total number of headteachers and administrative staff in these girls' schools.

8.2.1.2 Age

Table 8-7: Distribution of the study sample according to age

Age	Frequency	Percent
20-30 years	48	9.1
31-40 years	273	52.0

Age	Frequency	Percent
41-50 years	184	35.0
Over 51 years	10	1.9
Missing	10	1.9
Total	525	100.0

With reference to respondents' age groups, the analysis showed that about half of the respondents (n = 273, 52 per cent) were aged from 31-40 years. The next most frequent group was the age group 41-50 years (n = 184, 35 per cent). Finally respondents who were 51 years and above were the smallest number in terms of academic staff participation (n =10, 1.9 per cent).

8.2.1.3 Education level of participants

Table 8-8: Distribution of the study sample according to education level

Education Level	Frequency	Percent
High school or equivalent	13	2.5
Diploma	23	4.4
Bachelor's	460	87.6
Postgraduate	27	5.1
Missing	2	0.4
Total	525	100.0

Table 8-8 shows that most of the participants (93%) had as a minimum a Bachelor's degree. The remaining 7% had secondary education or a diploma qualification, indicating that all the participants possessed the level of knowledge and understanding to effectively contribute to the completion of the questionnaire.

8.2.1.4 Years of experience

Huber et al. (1993) conclude that employees who have more years of experience are more likely to have mastered several jobs and have a good understanding of the environment. Therefore, if they were engaged, they would be more likely to respond to initiatives to improve quality. Table 5.9 presents the years of work experience in the sample.

Table 8-9: Distribution of study sample according to work experience

Years of work experience	Frequency	Percent
1 – 5 years	61	11.6
6 – 10 years	56	10.7
11 – 15 years	106	20.2
16 – 20 years	178	33.9
21 – 25 years	81	15.4
More than 26 years	39	7.4
Missing	4	0.8
Total	525	100.0

The results in Table 8-9 illustrate that 34% of the respondents had 16-20 years' work experience, 20.2% had 11-15 years' work experience and 15.4% had 21–25 years' work experience. This indicates that most of the responding staff and managers had sufficient experience for them to provide the research with adequate and accurate information.

8.2.1.5 Number of training courses

Table 8-10: Distribution according to the number of training courses on TQM

Number of training courses on TQM	Frequency	Percent
Yes	122	23.2
No	395	75.2
Missing	8	1.5
Total	525	100.0

The data show that 75.2%, the majority had not undertaken any TQM training. Not quite a quarter of the respondents (23.2%) had had 'some' previous knowledge of TQM obtained by taking training courses about TQM; most of them were managers. Feedback from the pilot interviews at the Ministry of Education indicated that a new TQM training plan is to be rolled out which train school headteachers first and then gradually move on to the remaining staff in schools. Based on the participants' low exposure to training and the MOE's rollout of a new training plan, it is reasonable to consider this demographic criterion to be a reliable criterion for further analysis.

8.2.1.6 Summary of the respondents' characteristics profile

The members of the representative group of respondents are well-educated and sufficiently discriminating from their professional experience in the school system to express valid opinions about the implementation of TQM. However, most of them had not undergone TQM training and this may have had an impact on their interpretation and understanding of the implementation of the Critical Success Factors for TQM in the survey.

8.2.2 General characteristics of the sample according to school

8.2.2.1 Location of the school

Table 8-11: Distribution of study sample according to location of the school

Location of the school	Frequency	Percent	Total Schools%
North Riyadh	183	34.9	77%
South Riyadh	65	12.4	65%
East Riyadh	200	38.1	81%
West Riyadh	66	12.6	60%
Central Riyadh	11	2.1	13%
Total	525	100.0	

This table shows that approximately 35 % of the respondents came from the north of the city, considered its newest and most modern district. 38.1% of the respondents came from East. South and West Riyadh and Central Riyadh is the least represented.

8.2.2.2 Study system

Table 8-12: Distribution of the study sample according to the study system

Study system	Frequency	Percent
Course system	200	38.1
Mainstream (regular) system	325	61.9
Total	525	100.0

Approximately 38% of schools present the course system (see Appendix A.2.1), while approximately 62% offer the mainstream system. The government has recently introduced the course system, as noted above, to implement modern academic and management systems.

8.2.2.3 Type of school building

Saudi Arabia has a fast-growing young population which presents a challenge to the allocation of educational resources. In 2006, more rented buildings were used for education than buildings owned by the government. Substantial investment has been made to address this issue and to improve the associated tools and facilities (Al-Sadaawi, 2010). Table 8-13 indicates the ownership status of the school buildings in the sample population.

Table 8-13: Distribution of study sample according to the type of building

Type of school building	Frequency	Percent
Rented building	50	9.5
Government building	475	90.5
Total	525	100.0

The table above shows that 90.5% of the staff involved work in government-owned schools, while only 9.5% work in rented buildings. This is consistent with expectations, since the Ministry of Education is trying hard to reduce the number of schools run in rented premises and intends to build enough schools to eliminate renting in the next three years.

8.2.2.4 Summary of school-related characteristics

The schools from which this sample was drawn represent mostly government purpose-built school buildings and the teacher population represents predominantly those teaching in the mainstream study system. All five districts are represented, with emphasis on the northern and eastern districts.

8.3 Part Two: the Perception of the Level of TQM Implementation

This section seeks to answer the research question "What is the perception of the level of TQM implementation? This provide the data from which the researcher can establish the baseline for TQM implementation.

The quantitative data analysis helped to establish a broad sense of the perceptions and attitudes among the internal stakeholders (headteachers, teachers and administrative staff) regarding TQM implementation in their schools.

The questionnaire was designed to include the seven Critical Success Factors (Top Management Commitment, Involvement and Empowerment, Continuous Professional Development (CPD), Recognition and Reward, Student Focus, Stakeholder Focus and Tools and Techniques for Measurement) that were identified in the initial framework in section 7.1.2

This section presents the results of Part Two of the questionnaire, which investigates the perception level of the respondents regarding TQM implementation with reference to each Critical Success Factor. These Critical Success Factors are the domains which represent the central principles of the TQM implementation framework model. Each domain includes a set of statements that indicates the level of implementation of the domain's principle and the stages of implementation of processes and practices Table 8-14 to Table 8-20 show the cumulative extent of respondents' approval by frequency (percentages) for each statement, which are also ranked in order from the highest to the lowest mean value.

The results of the domain statements provide a baseline for TQM implementation according to the perceptions of the implementation of each of the seven TQM principles. The perceptions reveal how the respondents interpret the statements in the light of their contextual understanding and experience of current practices.

The following table indicates the perception levels for the domain of Top Management Commitment.

8.3.1 **Top management commitment**

Table 8-14: Perception of the level of Top Management Commitment

No.	Statement		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	Mean	Std. Dev	Agreement Order
7	Top management seeks to introduce new resources such as technology, new processes and systems to improve the quality of management and education provided in the school.	Freq.	170	221	62	54	18	3.90	1.07	1
		%	32.4	42.1	11.8	10.3	3.4			
3	There is open communication between managers and staff.	Freq.	131	216	106	60	12	3.75	1.03	2
		%	25.0	41.1	20.2	11.4	2.3			
1	The school's top management has adequate knowledge of TQM.	Freq.	97	177	183	53	15	3.55	1.00	3
		%	18.5	33.7	34.9	10.1	2.9			
2	The school's top management actively participates in TQM implementation.	Freq.	87	202	151	71	14	3.53	1.01	4
		%	16.6	38.5	28.8	13.5	2.7			
6	Top management strives for long-term continuous improvement.	Freq.	101	191	124	79	30	3.48	1.13	5
		%	19.2	36.4	23.6	15.0	5.7			
4	Top management creates a suitable environment in which the staff is strongly empowered and involved in TQM activities.	Freq.	96	183	144	75	27	3.47	1.10	6
		%	18.3	34.9	27.4	14.3	5.1			
5	Top management regularly discusses TQM issues in their meetings.	Freq.	76	182	149	85	33	3.35	1.10	7
		%	14.5	34.7	28.4	16.2	6.3			
Mean* for Total								**3.57**		

* Mean of 5 degrees

In Table 8-14 the total mean for the Critical Success Factor **Top Management Commitment** is 3.57 which correlates to **Agree** in the Likert Scale and corresponds to a **Medium Level** of implementation. However, the first three practice statements exceed the collective mean, which indicates that the greatest amount of progress towards implementation can be seen in these practices.

The highest mean is 3.90, which corresponds to 74.5%, or 391 respondents in the collective group, who agree that **"Top management seeks to introduce new resources such as technology, new processes and systems"**. 13.7% disagree or strongly disagree, whilst approximately 11.8%, that is 62 respondents, are uncertain.

In second place, at 3.75, 66.1%, or 347 respondents agree that **"There is open communication between managers and staff"**. 20.2 %, that is, 106 respondents, are uncertain that this practice is in place and 13.7 % disagree.

In third place, at 3.55, 52.2 % or 274 respondents agree that "**The school's top management has adequate knowledge of TQM**", with 34.9%, 183 respondents uncertain and 13 % disagreeing.

In fourth place at a mean of 3.53, slightly lower than the collective mean of 3.57, 55.1%, or 289 respondents agree that "**The school's top management actively participates in TQM implementation**". However, 28.8 %, that is, 202 respondents, are uncertain that this practice is in place and 16.2% disagree.

The final three statements all have means lower than the total mean, which indicates that the lowest amount of progress is perceived to be in these areas. These are listed here in order. With a mean of 3.48, in relation to whether **"Top management strives for long-term continuous improvement"**, 23.6 % are uncertain and 20.7% disagree. Next, with a mean of 3.47, is "**Top management creates a suitable environment in which the staff is strongly empowered and involved in TQM activities**", with 27.4% uncertain and 19.4% disagreeing. The lowest mean is 3.35, with 49.2 % believing that **"Top management regularly discusses TQM issues in their meetings**", with 28.4% uncertain and 22.5 % of the respondents disagreeing. Effectively 50.9% do not perceive this factor to be implemented, since this mean falls in the **Low Medium Level** of implementation.

8.3.2 **Involvement and empowerment**

Table 8-15 indicates the perception levels for the domain of Involvement and Empowerment.

Table 8-15: Perception of the level of Involvement and Empowerment

Ser No.	Statement		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	Mean	Std. Dev	Agreement Order
11	Managers and staff are empowered enough to take actions immediately and independently whenever they encounter a problem.	Freq.	77	180	125	92	51	3.27	1.19	1
		%	14.7	34.3	23.8	17.5	9.7			
10		Freq.	49	127	179	115	55	3.00	1.12	2

	Feedback and suggestions are obtained regularly from the staff and other stakeholders.	%	9.3	24.2	34.1	21.9	10.5			
8	Staff members are actively involved in the decision-making process and TQM activities.	Freq.	55	138	128	150	54	2.98	1.18	3
		%	10.5	26.3	24.4	28.6	10.3			
9	External stakeholders are actively involved in the decision-making process and TQM activities.	Freq.	34	107	182	142	60	2.83	1.08	4
		%	6.5	20.4	34.7	27.0	11.4			
Mean* for Total								**3.02**		

* Mean of 5 degrees

The table above illustrates that the total mean for the Critical Success Factor **Involvement and Empowerment** is 3.02, which correlates to **Uncertain** in the Likert Scale and corresponds to a **Low Medium Level** of implementation.

If we consider the top three mean results of the individual practice statements to see which of the respective practices show the greatest progress in implementation, we see that all of the top three, with means from 3.27 to 2.83, fall in the **Low Medium Level** of implementation. The highest mean statement is 3.27, where almost 49% of the collective group agree that "**Managers and staff are empowered enough to take actions immediately and independently whenever they encounter a problem**". However 27.2% disagree or strongly disagree, whilst approximately 23.8%, are uncertain.

In second place, with a mean of 3.00, slightly lower than the collective mean, 33.5%, agree that "**Feedback and suggestions are obtained regularly from the staff and other stakeholders**". However, 34.1% are uncertain that this practice is in place and 32.4% disagree.

In third place is: "**The staff members are actively involved in the decision-making process and TQM activities"** with a mean of 2.98, where 36.8 % agree that this is in place but 24.4% are uncertain and 38.9 % disagree.

Finally, the lowest mean is 2.83, with 38.4% of respondents disagreeing that "**External stakeholders are actively involved in the decision-making process and TQM activity**"; here 34.7% are uncertain, whilst only 27% agree that this is taking place in their school.

8.3.3 **Continuous professional development (CPD)**

Table 8-16 indicates the perception levels for the domain of Continuous Professional Development (CPD).

Table 8-16: Perception of the level of Continuous Professional Development

Ser No.	Statement		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	Mean	Std. Dev	Agreement Order
15	Managers skilled in TQM transfer their expertise to the rest of the staff in the school.	Freq.	70	181	129	98	47	3.25	1.17	1
		%	13.3	34.5	24.6	18.7	9.0			
14	Training is designed in keeping with the MOE's mission.	Freq.	52	164	178	87	44	3.18	1.09	2
		%	9.9	31.2	33.9	16.6	8.4			
12	Headteacher and staff constantly receive training in TQM.	Freq.	59	116	176	122	52	3.02	1.14	3
		%	11.2	22.1	33.5	23.2	9.9			
13	Financial resources are available for staff quality training in the school.	Freq.	39	87	188	135	76	2.77	1.12	4
		%	7.4	16.6	35.8	25.7	14.5			
Mean* for Total								**3.05**		

* Mean of 5 degrees

The table above shows that the Total Mean for the Critical Success Factor **Continuous Professional Development** is 3.05, which correlates to **Uncertain** in the Likert Scale and corresponds to a **Low Medium Level** of implementation.

If we consider the top three mean results of all the individual statements, we see that they all fall in the range of **Low Medium Level** in implementation. However, for the practices which are perceived to have the greatest amount of progress in their implementation, the one with the highest mean of 3.25, where almost 48%, of the collective group agree, is that "**Managers skilled in TQM transfer their expertise to the rest of the staff in the school**". 28% disagree or strongly disagree, whilst approximately 25%, are uncertain.

In second place with 3.18, almost 41% agree that "**Training provided is consistent with the MOE mission**". However, 33.9%, are uncertain as to whether this is in place and 25% disagree.

In third place, at 3.02, 33.3 % agree that "**Headteacher and staff receive training constantly in TQM**", with 33.5% uncertain and 33.1 % disagreeing.

In addition, the lowest mean is 2.77, with approximately 24% of respondents agreeing that "**Financial resources are available for staff quality training in the school**"; this has the least agreement from the group, 40.2%.

8.3.4 **Recognition and reward**

The table below indicates the perception levels for the domain of Recognition and Reward.

Table 8-17: Perception of the level of Recognition and Reward

Ser No.	Statement		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	Mean	Std. Dev	Agreement Order
19	Recognition and reward activities stimulate staff members' commitment to TQM efforts effectively.	Freq.	240	164	63	31	27	4.06	1.13	1
		%	45.7	31.2	12.0	5.9	5.1			
18	Non-financial incentives are used to reward quality improvements.	Freq.	109	218	90	62	46	3.54	1.20	2
		%	20.8	41.5	17.1	11.8	8.8			
16	The school has a TQM reward system to recognise staff members' efforts in TQM activities.	Freq.	76	142	119	110	78	3.05	1.29	3
		%	14.5	27.0	22.7	21.0	14.9			
17	Financial incentives are used to reward quality improvements.	Freq.	44	72	128	164	117	2.55	1.21	4
		%	8.4	13.7	24.4	31.2	22.3			
Mean* for Total								3.30		

* Mean of 5 degrees

The table above shows that the total mean for the Critical Success Factor "**Recognition and Reward"** is 3.30, which correlates to **Uncertain** in the Likert Scale and corresponds to a **Low Medium Level** of implementation.

If we consider the mean results of the individual statements to see which of the respective practices show the most progress in implementation in this CSF, the top two exceed the collective mean of 3.30 and both correlate to **Agree** in the Likert Scale which corresponds to a **Medium Level** of implementation.

The highest mean of 4.06 shows almost 77% of the collective group agree that **"Recognition and reward activities stimulate staff members' commitment to TQM efforts effectively"**. 11% disagree or strongly disagree, whilst approximately 12% are uncertain.

In second place with 3.54, almost 62% agree that **"Non-financial incentives are used to reward quality improvement"**. However, 17.1% are uncertain that this practice is in place and 20.6 % disagree.

At third place, the statement "**The school has a TQM reward system to recognise staff members' efforts in TQM activities"** has a mean of 3.05 which correlates to **Uncertain** on the Likert Scale and a **Low Medium Level** of implementation, with only 41.5 % agreeing, whilst 22.7%, are uncertain and 35.9 % disagree.

However, the fourth statement has the lowest mean (2.55), which on the Likert scale correlates to the **Disagree** and a **Low Level** of implementation. Here 53.5% disagree with the statement that "**Financial incentives are used to reward quality improvements**", whilst only 22.1%, or 116 respondents agree and 24.4%, 128 respondents, are uncertain.

8.3.5 **Student focus**

Table 8-18 indicates the perception levels for the domain of Student Focus.

Table 8-18: Perception of the level of Student Focus

Ser No.	Statement		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	Mean	Std. Deviation	Agreement Order
23	The school supports extra-curricular activities and clubs for students.	Freq.	148	226	74	54	23	3.80	1.09	1
		%	28.2	43.0	14.1	10.3	4.4			
21	The school uses a variety of methods to regularly aggregate feedback from students to determine their requirements.	Freq.	82	171	162	78	32	3.37	1.10	2
		%	15.6	32.6	30.9	14.9	6.1			
22	The school collects student complaints and evaluates them carefully.	Freq.	77	170	163	79	36	3.33	1.11	3
		%	14.7	32.4	31.0	15.0	6.9			
20	The school has a system to determine the students' key requirements, needs and expectations.	Freq.	74	164	168	80	39	3.29	1.11	4
		%	14.1	31.2	32.0	15.2	7.4			
Mean* for Total								**3.45**		

* Mean of 5 degrees

The table above shows that the total mean for the Critical Success Factor "**Student Focus"** is 3.45, which correlates to **Agree** in the Likert Scale and corresponds to a **Medium Level** of implementation.

If we consider the mean results of the individual statements to see which of the practices have made the greatest progress in being implemented, we see that only the first practice statement exceeds the collective mean, with 3.80. Here 71.2% of the group agrees that **"The school supports extra-curricular activities and clubs for students"**. 14.7% disagree or strongly disagree, whilst approximately 14.1%, are uncertain.

However, in second place at 3.37 (which is lower than the total mean of 3.45 and on the Likert scale now falls into the **Low Medium Leve**l of implementation) almost 48.2% agree that **"The school uses a variety of methods to regularly aggregate feedback from students to determine their requirements"**. 30.9% are uncertain that this practice is in place and 21 % disagree.

In third place at 3.33, 47.1 % agree that "**The school collects student complaints and evaluates them carefully"** with 31% uncertain and 21.9 % disagreeing.

In the final place with the lowest mean at 3.29, 45.3 % agree that **"The school has a system to determine the students' key requirements, needs and expectations**" with 32% uncertain and 22.6 % of the respondents disagreeing.

8.3.6 **Stakeholder focus**

Table 8-19 indicates the perception levels for the domain of Stakeholder Focus

Table 8-19: Perception of the level of Stakeholders Focus

Ser No.	Statement		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	Mean	Std. Deviation	Agreement Order
25	The school collects parents' and other stakeholders' complaints and evaluates them carefully.	Freq.	68	164	177	78	38	3.28	1.09	1
		%	13.0	31.2	33.7	14.9	7.2			
24	The school collects staff members' complaints and evaluates them carefully.	Freq.	59	155	144	108	59	3.09	1.18	2
		%	11.2	29.5	27.4	20.6	11.2			
26	The school regularly surveys the needs and expectations of internal (staff members) and external (university industry, ex-students) stakeholders and uses them for school planning.	Freq.	43	134	208	89	51	3.06	1.07	3
		%	8.2	25.5	39.6	17.0	9.7			

Ser No.	Statement		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	Mean	Std. Deviation	Agreement Order
27	The school regularly conducts surveys on job satisfaction among employees and teachers.	Freq.	40	113	179	116	77	2.85	1.14	4
		%	7.6	21.5	34.1	22.1	14.7			
Mean* for total								**3.07**		

* Mean of 5 degrees

In Table 8-19 the total mean for the Critical Success Factor **Stakeholder Focus** is 3.07 which correlates with **Uncertain** in the Likert Scale and corresponds to a **Low Medium Level** in implementation.

All of the statements fall into the Likert level of **Low Medium** in implementation but we see that the most progress has been made in the first three practices. The highest mean is 3.28; almost 44.2% of the collective group agree that **"The school collects parents' and other stakeholders' complaints and evaluates them carefully"**. 22.1% disagree or strongly disagree, whilst approximately 33.3%, are uncertain.

In second place with 3.09, almost 41%, or 214 respondents agree that "**The school collects staff members' complaints and evaluates them carefully**". However, 27.4% are uncertain as to whether this practice is in place and 31.8 % disagree.

In third place with 3.06 (lower than the total mean of 3.07), 33.7 % agree that "**The school regularly surveys the needs and expectations of internal (staff members) and external (university industry, ex-students) stakeholders and uses them for school planning**" with 39.6% uncertain and 27.6 % disagreeing.

In addition, the lowest mean is 2.85; here approximately 29.1% agree that "**The school regularly conducts surveys on job satisfaction among employees and teachers**". This has the lowest level of agreement of the collective group, with 36.8% disagreeing.

8.3.7 **Tools and techniques for measurement**

Table 8-20 indicates the perception levels for the domain of Tools and Techniques for Measurement.

Table 8-20: Perception of the level of use of Tools and Techniques for Measurement

Ser No.	Statement		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	Mean	Std. Deviation	Agreement Order
36	The school translates the reviewed findings into priorities for innovation and improvement.	Freq.	79	178	167	65	36	3.38	1.09	1
		%	15.0	33.9	31.8	12.4	6.9			
28	Different tools and techniques are used to measure development.	Freq.	62	187	184	60	32	3.36	1.03	2
		%	11.8	35.6	35.0	11.4	6.1			
35	The school has a system to review organisational performance and capabilities.	Freq.	68	160	196	66	35	3.30	1.06	3
		%	13.0	30.5	37.3	12.6	6.7			
31	Performance appraisals are used to identify training development needs.	Freq.	68	158	180	78	41	3.26	1.10	4
		%	13.0	30.1	34.3	14.9	7.8			
33	The school has a clear quality manual, quality system documents and working instructions.	Freq.	58	149	205	72	41	3.21	1.06	5
		%	11.0	28.4	39.0	13.7	7.8			
34	The school has a clear benchmarking system to learn lessons from best practice and uses other similar schools' experiences when planning for their school.	Freq.	59	145	196	87	38	3.19	1.07	6
		%	11.2	27.6	37.3	16.6	7.2			
32	Feedback on performance appraisals is frequent, regular and effective.	Freq.	55	124	239	72	35	3.18	1.02	7
		%	10.5	23.6	45.5	13.7	6.7			
29	Statistical tools are used to analyse data about the school to develop plans for improvement.	Freq.	50	139	225	70	41	3.17	1.03	8
		%	9.5	26.5	42.9	13.3	7.8			
30	Decisions in schools are based on the results from analysed data.	Freq.	51	142	210	76	46	3.14	1.07	9
		%	9.7	27.0	40.0	14.5	8.8			
Mean* for total								**3.234**		

* Mean of 5 degrees

In Table 8-20 the total mean for the Critical Success Factor **Tools and Techniques** is 3.23, which correlates with **Uncertain** in the Likert Scale and corresponds to a **Low Medium Level** in implementation.

The means that all of the individual statements have the position on the Likert scale for **Low Medium Level** in implementation, but the most progress has been made in the practice of the first four individual statements, which exceed the collective mean.

The most progress is in **"The school translates the reviewed finding into priorities for innovation and improvement"** with the highest mean at 3.38 and almost 48.9% of the collective group agreeing with the statement, 19.3% disagreeing or strongly disagreeing, whilst approximately 31.8%, are uncertain.

In second place at 3.36, almost 47.4% agree that **"Different tools and techniques are used to measure development"**. However, 35% are uncertain that this practice is in place and 17.5 % disagree.

In third place at 3.30 (lower than the total mean of 3.07), 30.5 % (385 respondents) agree that "**The school has a system to review organisational performance and capabilities",** with 37.3% uncertain and 19.3 % disagreeing.

In the fourth place above the mean at 3.26, 43.1 % agree that **"Performance appraisals are used to identify training development needs**" with 34.3% uncertain and 22.7 % disagreeing.

All the following statements are below the collective mean; the lowest mean is 2.85 where only approximately 36.7% agree that "**The decisions in schools are based on the results from the analysed data**" whilst 40% are uncertain and 23.3% disagree.

8.3.8 Findings in part two for the CSF levels of TQM implementation

All the practice statements are combined in their respective Critical Success Factors and presented in

Table 8-21, which orders them according to their total mean. The mean represents the degree of approval among respondents that is considered evidence of the Critical Success Factor in question being observed or in place.

Using the Likert Scale to correlate the mean to the level of implementation in the bar chart below, it is apparent that only two Critical Success Factors have progressed to a Medium Level of implementation, Top Management Commitment and Student Focus, the latter being only just in this range. The rest of the Critical Success Factors are at the Medium Low Level of implementation, ranging from the one where the most progress has been

made, namely, Recognition and Reward, to the one with the least progress, Involvement and Empowerment.

Table 8-21: Mean and std. deviation in totals for factors

Factor	Mean*	Std. D	Agreement Order
Top Management Commitment	3.57	0.86	1
Student Focus	3.45	0.94	2
Recognition and Reward	3.30	0.92	3
Tools and Techniques for Measurement	3.24	0.91	4
Stakeholder Focus	3.07	0.97	5
Continuous Professional Development (CPD)	3.05	0.95	6
Involvement and Empowerment	3.02	0.94	7
Total	3.27	0.79	

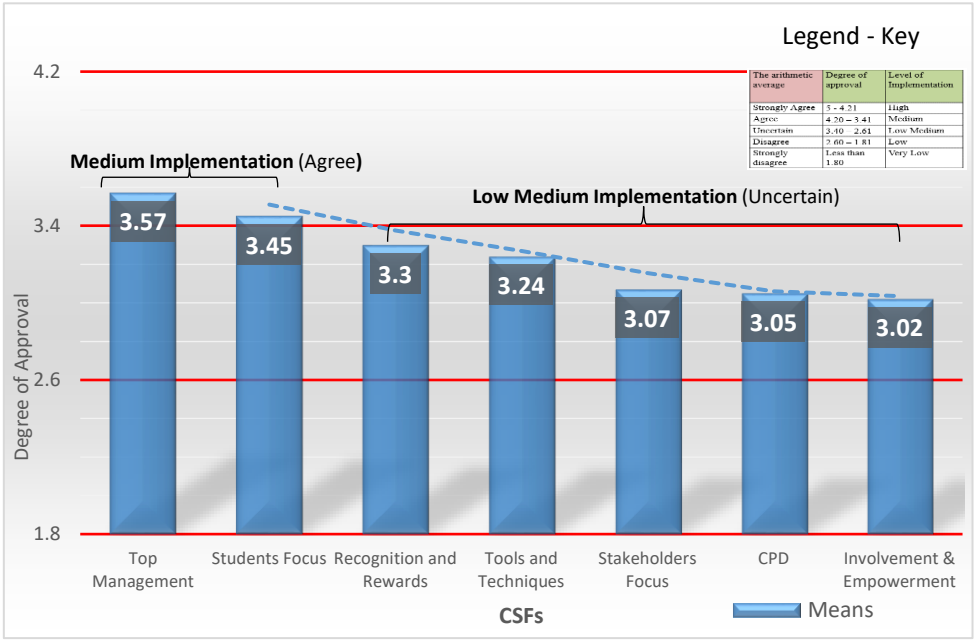


Figure 8-1: Level of TQM implementation

The baseline for TQM implementation has now been established from the perceptions of the respondents. However, the researcher recognises that the opinions of the respondents be influenced by contextual variables. The extent to which these variables influence the perceptions is assessed in Part Three.z

8.4 Part Three: the Contextual Factors Influencing the Perceptions

From the demographic information collected in the questionnaire the researcher was able to ascertain the contextual characteristics of the respondents and develop a profile of the respondents. These characteristics were then further assessed to determine if any of them exert an influence on the level of TQM implementation of the Critical Success Factors that are observed or perceived to be taking place.

In order to filter out which of the six demographic conditions variables – job title, location of the school, study system, type of building, education level and years of experience – may exert an influence on the respondents' perceptions, each variable was postulated as an hypothesis on whether it would significantly influence the sample respondents' perception of the Level of TQM Implementation of each of the CSFs, as indicated in Table 8-2.

Figure 8-2: Filtering the variables that influence perceptions

Analysis in this section: Two significance tests were performed to examine whether there is a significant difference between the means of the answers depending on the selected conditional variables. Initially a One-Way ANOVA and then a T-test were carried out to test the hypotheses. The One-Way ANOVA was used to test the difference between three or more group means, whilst the T-test was selected to test the difference between two

groups to determine the statistically significant differences between the averages of these respondent groups.

Depending on whether the results of the alternative hypotheses were accepted, further (post hoc) tests were conducted to provide specific information on which means are significantly different from each other and to explore whether the source of the significant difference influence could be established.

The researcher used Scheffe tests to identify the source of the largest difference between the three sample group means for headteachers, teachers and administrative staff respectively, to compare which of these groups displays a significantly more favourable opinion on the level of implementation

The researcher also applied the LSD (Least Significant Difference) test, which in this sample included headteachers, administrative staff and teachers combined in a single group, and carried out an analysis by the years of experience to investigate whether there is a particular category range in the years of experience that appears to have a more favourable attitude to the level of implementation of the key factors (see the figure below).

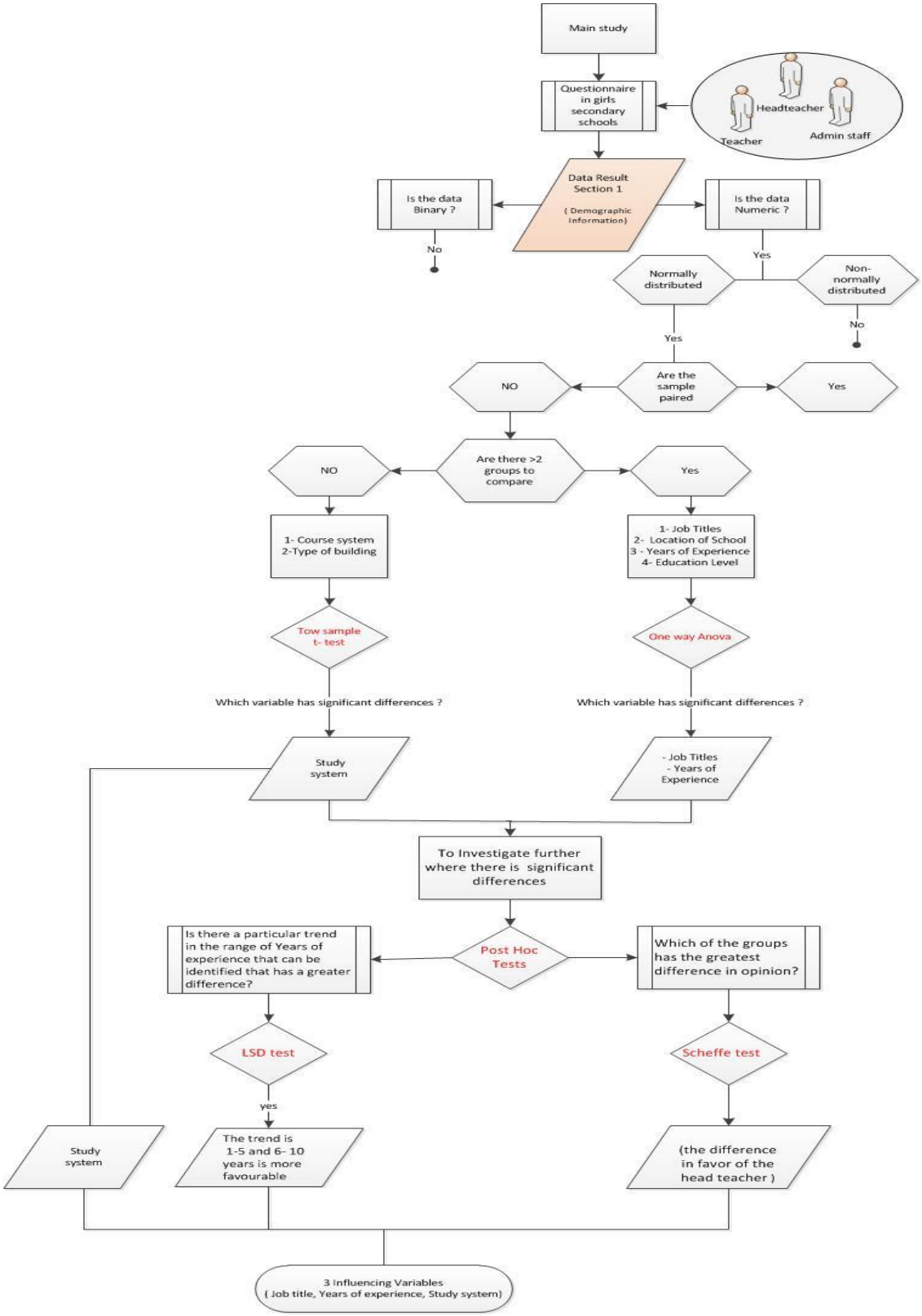


Figure 8-3: Analysis of the influencing variables

In order to conduct the tests, the following hypotheses were proposed:

8.4.1 First hypothesis (job title)

In this hypothesis the test is to examine whether job title exerts a significant difference on the perception of the specific CSF level of implementation. The null and alternative hypotheses are presented as follows.

Null hypothesis H0: There are no significant differences in the perception of the level of TQM implementation (based on the seven Critical Success Factors) between respondents with different job titles.

Alternative hypothesis H1: There are significant differences in the perceptions of the level of TQM implementation (based on the seven Critical Success Factors) between respondents with different job titles.

According to the results in Appendix (H.1), job title does not appear to exert any influence on continuous professional development since there are no statistically significant differences between the responses of the sample. However, the six other factors do show statistically significant differences at a level of 0.01, so there does appear to be an influence relating to job title on these factors. Therefore the researcher applied post hoc testing using the Scheffe test to detect the nature and source of these differences, as displayed in the table in Appendix H-2.

This table shows the existence of significant differences, at the level of 0.05, of all these factors (having excluded continuous professional development) which are in favour of the headteacher. Based on this analysis, it is proved that H0 is to be rejected and H1 fully accepted.

Teachers overall appear to have a consistently lower mean score in comparison to the two other groups, headteachers and administration staff; in particular, they had the lowest scores in the Involvement and Empowerment, Stakeholder Focus and Tools and Techniques factors.

8.4.2 Second hypothesis (location of the schools)

This hypothesis seeks to determine whether the location of the school exerts a significant influence on the perception of the level of implementation of the Critical Success Factors, as proposed below.

Null hypothesis H0: There are no significant differences in the perception of the level of TQM implementation (based on the seven Critical Success Factors) between respondents with different school locations.

Alternative hypothesis H1: There are significant differences in the perception of the level of TQM implementation (based on the seven Critical Success Factors) between respondents with different school locations.

The table in Appendix H-3 shows that in the case of the factors Top Management Commitment, Involvement and Empowerment, Continuous Professional Development (CPD), Recognition and Reward, Student Focus, Stakeholder Focus and Tools and Techniques for Measurement, the total degrees indicate that there are no statistically significant differences between the responses of the sample in those factors. This would indicate that the location of the school does not affect the perception of these factors.

Based on this analysis, the location does not appear to exert a significant influence on the perception of CSF in TQM implementation. For this reason H0 is accepted and H1 is to be rejected.

8.4.3 Third hypothesis (study system)

With this hypothesis the intent is to understand whether the type of study system offered influences the perception of the Critical Success Factors; it is presented as follows.

Null hypothesis H0: There are no significant differences in the perceptions of the level of TQM implementation (based on the seven TQM Critical Success Factors) between respondents at schools which offer different study systems.

Alternative hypothesis H1: There are significant differences in the perceptions of the level of TQM implementation (based on the seven TQM Critical Success Factors) between respondents at schools which offer different study systems.

(Table Apx H-4) shows that the T values for the factors Top Management Commitment, Involvement and Empowerment, Continuous Professional Development (CPD), Recognition and Reward, Student Focus, Stakeholder Focus and Tools and Techniques for Measurement indicate that there are statistically significant differences between the responses of the sample in these factors according to the type of education system in the school and that the differences were in favour of the course system.

Therefore the nature of the study system offered does exert a significant influence on the perception of CSF implementation, especially the course system. In order to understand the significance of the influence of the course system on each CSF compared to the main system, a further analysis of the moving mean average was undertaken, as shown in Figure 8-4, below.

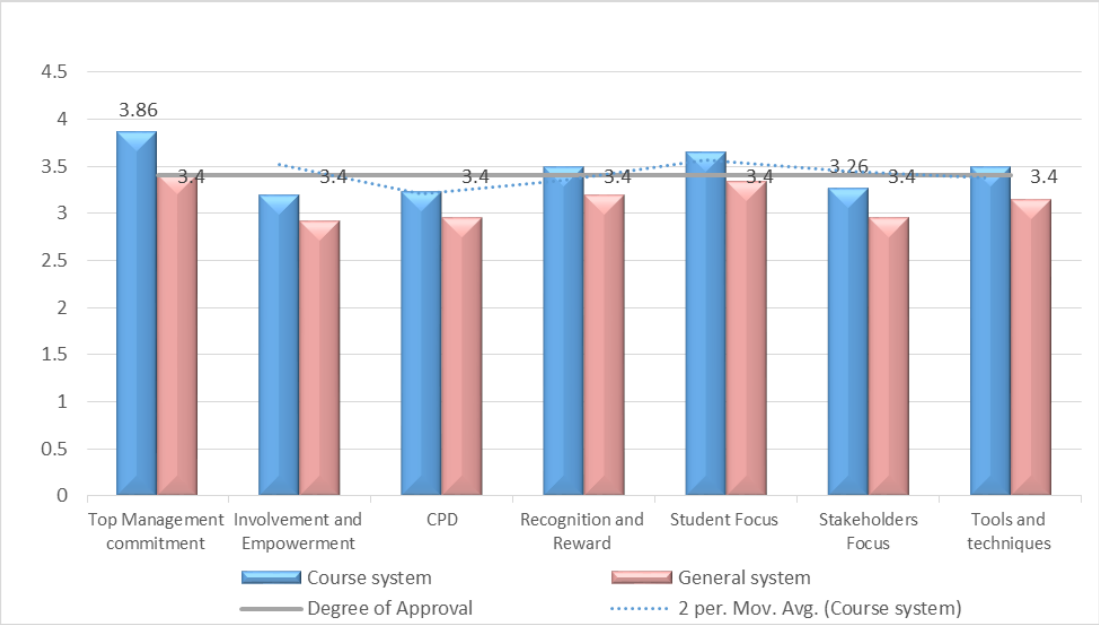


Figure 8-4: Differences in the responses of the sample according to the study system

In Figure 8-4, the responses in the course system schools present a more favourable (higher) mean average than those in the mainstream system. The highest T values for the course system and mainstream system occur for the following factors: Top Management Commitment, Tools and Techniques and Student Focus. However only the respondents from schools with the course study system agree that the factors of Top Management Commitment, Recognition and Reward, Tools and Techniques and Student Focus are

being implemented; even so, about other factors they are uncertain. The mainstream system school participants are uncertain about all the factors.

Based on this analysis, there is a correlation between the presence of CSFs for TQM implementation and the study system in the school. It is clear that H0 should be rejected since there is a difference between the averages of answers which depends on the study system in the schools; this indicates that H1 is to be accepted.

8.4.4 **Fourth hypothesis (respondent's education)**

This hypothesis examines whether the level of education exerts an influence on the perceptions of the implementation of the Critical Success Factors.

Null hypothesis H0: There are no significant differences in the perception of the level of TQM implementation (based on the seven critical Success Factors) between respondents with different education levels.

Alternative hypothesis H1: There are significant differences in the perception of the level of TQM implementation (based on the seven Critical Success Factors) between respondents with different education levels.

Table Apx H-5 shows that the values for F do not represent a function in the factors of Top Management Commitment, Involvement and Empowerment, Continuous Professional Development (CPD), Recognition and Reward, Students' Focus, Stakeholders' Focus and Tools and Techniques for Measurement. The total degrees indicate that there are no statistically significant differences between the responses of the sample in these factors depending on education level.

Based on this analysis, the educational level does not appear to exert a significant influence on perceptions of the presence of CSFs for the implementation of TQM. Thus, in this case the H1 is rejected and H0 fully accepted.

8.4.5 **Fifth hypothesis (years of experience)**

This hypothesis examines whether years of experience exert an influence on the perception of the implementation of the Critical Success Factors

Null hypothesis H0: There are no significant differences in the perceptions of the level of TQM implementation (based on the seven Critical Success Factors) between respondents according to their years of experience.

Alternative hypothesis H1: There are significant differences in the perceptions of the level of TQM implementation (based on the seven Critical Success Factors) between respondents according to their years of experience.

The table in Appendix H-6 in shows that the values of F are not a function in the factors of Top Management Commitment, Recognition and Reward and Student Focus. The total degrees indicate that there are no statistically significant differences between the responses of the sample in these factors according to years of experience. However, the values of F are a function at the level of 0.05 or less in the factors of Involvement and Empowerment, Continuous Professional Development (CPD), Stakeholder Focus and Tools and Techniques for Measurement, which indicates that there are statistically significant differences between the responses of the sample in these factors according to years of experience. Because of the inability of the Scheffe test to detect the source of these differences, the Least Significant Difference test (LSD) was used in the Table Apx H-7.

The table shows the existence of significant differences at the level of 0.05 as follows:

- There are significant differences in the sample of participants in the factor of **"Involvement and Empowerment"**, which are in favour of members of the sample groups with experience of 1 to 5 years and 6 to 10 years.

- There are significant differences in the factor "**Continuous Professional Development (CPD)"** in the sample of participants which are in favour of members of the sample groups with experience of 1 to 5 years, 6 to 10 years and 11 to 15years.

- There are significant differences in the factor **"Stakeholder Focus"** in the sample of participants, which are in favour of members of the sample groups with experience of 1 to 5 years and 6 to 10 years.

- There are significant differences in the factor **"Tools and Techniques for Measurement"** in the sample of participants which are in favour of members of the sample groups with experience of 1 to 5 years, 6 to 10 years and 11 to 15 years.

- There are significant differences in the **total degree** for the opinions on the level of TQM implementation between the sample of participants which are in favour of members of the sample groups with experience of 6 to 10 years, 1 to 5 years and 11 to 15years.

Based on this analysis, it does appear that years of experience influence perceptions of the presence of the CSFs for TQM implementation. Therefore H0 is rejected and H1 is to be accepted.

8.4.6 Sixth hypothesis (type of school building)

This hypothesis examines whether the type of school building exerts an influence on the perception of the implementation of the Critical Success Factors**.**

Null hypothesis H0: There are no significant differences in the perceptions of the level of TQM implementation (based on the seven Critical Success Factors) between respondents depending on the type of school buildings.

Alternative hypothesis H1: There are significant differences in the perceptions of the level of TQM implementation (based on the seven Critical Success Factors) between respondents depending on the type of school building.

The table in Appendix H-8 shows that the T values are not a function in the factors of Top Management Commitment, Involvement and Empowerment, Continuous Professional Development (CPD), Recognition and Reward, Student Focus, Stakeholder Focus and Tools and Techniques for Measurement; the total degree regarding the level of implementation of the critical factors is that there are no statistically significant differences between the responses of the sample in these factors according to the type of school building.

Based on this analysis, the type of school building does not appear to exert a significant influence on the perceptions of implementation of the CSFs. Therefore H0 is accepted and H1 is to be rejected.

8.4.7 **Hypothesis findings**

In the cases of the second, fourth and sixth hypotheses, the null hypotheses were accepted, whereas in the cases of the first, third and fifth hypotheses, the alternative hypotheses were accepted. The surveys indicated that in all three groups there is no significant influence from the location of the school, level of education of the teachers and type of building on the opinions of the level of TQM implementation (based on the seven Critical Success Factors) in the schools.

However, the research results indicate that the conditional variables job title, study system and years of experience do appear to influence the perceptions of TQM implementation based on the seven Critical Success Factors.

The following section addresses the research question: 'What are the main obstacles considered to hinder TQM implementation?

8.5 Part Four: the Main Obstacles to TQM Implementation

In order to determine what the main obstacles are to TQM implementation in girls' secondary schools in Riyadh, a survey questionnaire asked the headteachers to rank in order their Top 10 from a list of seventeen obstacles often cited in the literature that affect the implementation of the seven key principles of TQM Implementation. The questionnaire included open ended questions on how they might resolve their perceived barriers.

This questionnaire was distributed to 61 headteachers of girls' secondary schools from different locations in Riyadh. The headteachers ranked in order by the who have each ranked their Top 10 obstacles from the most difficult to least difficult on the basis of their experience in implementing TQM in their schools.

Additionally, semi-structured interviews were also conducted with 35 of these headteachers to better understand their considerations of the interdependencies and causal

relationships among the obstacles and also the correlation relationship with the associated Critical Success Factors. The researcher analysed the frequency of interrelationships identified by each head teacher.

The analysis in this section: The results of the ranking were statistically analysed according to the frequency distribution. The content analysis from the interviews was used to determine the key themes and issues related to the TQM principles.

Table 8-22 presents the results of the obstacles ranked in order by the headteachers.

Table 8-22: Top seventeen obstacles
(Ranked in order of frequency of occurrence by headteachers)

Ser No.		Obstacles	Rank	No. of cases
2	Top five	Inadequate knowledge or understanding of TQM	1	56
10		Lack of training programmes	2	52
3		Lack of top management commitment and belief in the TQM programmes	3	52
8		Weakness in commitment to employee involvement and empowerment	4	40
13		The absence of precise criteria for determining the level of performance needed to achieve quality standards in the school.	5	53
9	Top ten	Weakness in focusing on customer satisfaction and expectations	6	50
5		Poor organisational communication	7	34
12		Lack of use of quality measurement and benchmarking	8	22
14		Lack of infrastructure suitable for the application of TQM	9	26
11		Inefficient information systems used in the company	10	26
15	Rest of seventeen	Inappropriate Reward and Recognition	11	22
4		Weakness in commitment to quality strategy requirements	12	28
17		Resistance of some staff in the school	13	34
7		Lack of qualified human resources	14	12
6		Lack of material resources necessary for the application of comprehensive quality standards in the school	15	30
1		Weakness in attention to a quality culture	16	44
16		Expecting immediate results	17	36

The table above is divided up according to the top five and top ten obstacles; the last section shows the rest of the seventeen obstacles. First consideration be given to the top

ten 'significant obstacles'. It demonstrates that "*Inadequate Knowledge of TQM"* is considered the main impediment. It was ranked 56 times; that is, 56 headteachers included this obstacle in the top 10 of their ranked list of 17. Therefore it is this obstacle that is perceived by almost all of the headteachers to significantly hamper the implementation of TQM.

"*Lack of training programs*" is ranked joint second with 52 appearances in the top 10 alongside "*Lack of top management commitment and belief in the TQM programmes"* which also occurred 52 times.

"*Weakness in commitment to employee involvement and empowerment*" occurred 40 times in the top ten and is in fourth position. *"The absence of precise criteria for determining the level of performance needed to achieve quality standards in the school*" was cited 53 times and is ranked fifth. *"Weakness in focusing on customer satisfaction and expectations"* is sixth with 50 appearances. In seventh position is "*Poor organisational communications"* which occurred 34 times, then, in 8th position, "*Lack of use of quality measurement and benchmarking"* was referenced 22 times. Ranked 9th with 26 appearances in the top ten list *is "Lack of infrastructure suitable for the application of TQM";* in tenth position is *"Inefficient information systems used in the company"* with 26 occurrences. The last three obstacles are tools and resources to be used whilst the previous characteristics are all people-based.

8.5.1 Dealing with the barriers to TQM Implementation through interrelationship correlations

Once the top ten ranked obstacles from the questionnaire were identified, it became important to find appropriate ways to effectively address the underlying causes in order to successfully implement the seven principal Critical Success Factors of TQM, as shown in Figure 8-5.

First, interrelationships and interdependencies among these seventeen obstacles should be checked to determine if one or more major underlying obstacles could significantly reduce the negative effects if they were addressed.

Therefore the researcher analysed the open-ended questions to headteachers asking how they would resolve the main obstacles they faced. Using this information as a basis, the researcher then interviewed 35 headteachers to discover their further perceptions and insights on whether they considered any interdependences to exist among the obstacles and in the causal relationships between the obstacles and the Critical Success Factors. These interrelationships could then be used to group the obstacles into underlying causal factors which could then be addressed.

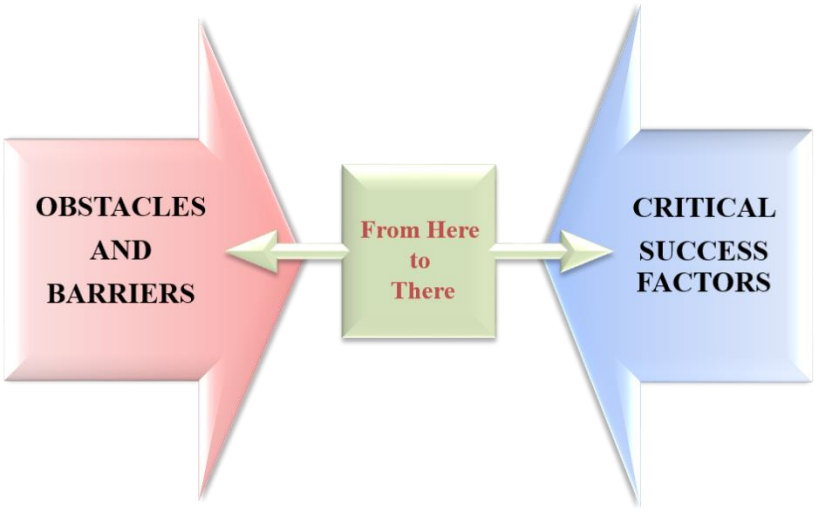


Figure 8-5: The interrelationships required to deal with the barriers to TQM

First part of the ranked obstacles list (top five):

Initially, it is important to consider whether the headteachers offer any insights into the interrelationships and interdependencies among the top five obstacles.

Table 8-22 indicates that the top three obstacles identified by the headteachers are "*Inadequate knowledge or understanding of TQM*", "*Lack of Training*" and "*Lack of Top Management Commitment*".

In this particular case the headteachers considered that these three are directly related. Their view was that "*Inadequate knowledge or understanding of TQM*" is a result of "*Lack of training*". Furthermore, when there is inadequate knowledge, it correlates to a "*Lack of Top Management Commitment*" to actively seek training opportunities.

Hence the top three obstacles can be reduced to a top two, "**Lack of Top Management Commitment**" and "**Lack of Training**". These are two independent but interrelated variables that can be considered fundamental and essential in any initiative.

Furthermore, when considering the next obstacles in the top five, "*Weakness in commitment to employee involvement and empowerment*" the headteachers indicated that it would be difficult to empower and engender employee commitment if there was a "**Lack of Top Management Commitment"** and belief in TQM. The lack of training could be considered an obstacle to TQM's being implemented effectively and consistently. If top management is committed to training then this improve the implementation. However the researcher's perception is that training not drive the implementation.

In the fifth position is "*The absence of precise criteria for determining the level of performance needed to achieve quality standards in the school*". The headteachers considered that it was reasonable that **Lack of Knowledge** would make it difficult to determine precise criteria for measuring quality. However the researcher considers that a **Lack of Training** would also have an influence in relation to performance management and setting quality standards.

It would appear that among the top five obstacles "**Lack of Training"** and **"Lack of Top Management Commitment"** and belief in TQM are two independent but interrelated factors, whilst *"Inadequate knowledge or understanding of TQM", "Weakness in commitment to employee involvement and empowerment" and "The absence of precise criteria for determining the level of performance needed to achieve quality standards in the school"* can be considered symptoms of these two main obstacles.

Thus, in summary, the top five obstacles have now been reduced to a top two which can be considered major obstacles. The second section of the top ten obstacles list can now be analysed.

Second part of the ranked obstacles list (items 5 to 10):

The researcher analysed the insights from the interviews for the second part of the top ten list. *"Weakness in focusing on customer satisfaction and expectations"* is the obstacle

ranked sixth. This weakness was directly attributable to the commitment of top management. It is top management's responsibility to maintain this focus as a goal in the school. The overall view was that, whilst training can improve the way something is implemented, it cannot determine that it is implemented at all.

"*Poor organisational communication"* ranked seventh and was also considered to be the direct responsibility of members of top management and to depend upon their commitment to its implementation. Poor organisational communication can indicate that there is a lack of communication but also could indicate that, even if there is communication, its level of effectiveness is inadequate. In this last case then this would have an interdependency with training.

In eighth position, "*Lack of use of quality measurement and benchmarking*", implies that there is a recognition and awareness of the tools but they are not being applied; whilst there needs to be a commitment to using them, if there is not enough **Training** in how to use them, they not be used.

The respondents rated "*Lack of infrastructure suitable for the application of TQM*" as ninth and "*Inefficient information systems used in the company"* tenth respectively. It is to be considered reasonable to group both of these obstacles under **Tools and Resources**.

The availability of a certain information system depends upon the appropriate infrastructure being in place; however, infrastructure is independent of information systems. Realistically, top management commitment can influence how these separate resources develop but cannot ensure that they exist; that is under the control of the Ministry.

The top 10 significant obstacles have now been reduced to 3 major obstacles: "**Lack of Top Management Commitment**", "**Lack of Training**" and "**Lack of Tools and Resources**".

Third part of the ranked obstacles list (items 11 to 17):

Applying the same approach, the researcher examined the insights in the third section which deals with the rest (nos.11-17) of the significant obstacles. Here "*Inappropriate Reward and Recognition*" is given eleventh position. The presence of some rewards and

recognition obviously implies commitment; but the view was that its form was inappropriate, which indicates it is not sufficiently aligned to the needs of the whole organisation. Rewards and recognition in TQM is a complex area; funding and expertise (**Tools and Resources**) are required to match the incentives and recognition in such a way as to promote the ongoing development of the school through the progression stages of TQM implementation, as well as the measurement and recognition of individual progress in each stage of the school programme.

Having considered the obstacles placed individually twelfth to seventeenth in the list, the conclusions obtained were that several are symptoms of an already identified significant obstacle. So "*Weakness in commitment to quality strategy requirements*" in twelfth position, "*Resistance of some staff in the school*" in thirteenth, "*Weakness in attention to a Quality Culture*" in sixth and "*Expecting Immediate Results*" in seventeenth are all related to the responsibilities of leadership and therefore can be directly attributed to **Lack of Top Management Commitment**.

From the researcher's perspective, it is worth considering that in the case of "*Resistance of some staff in the school*" appropriate **Reward and Recognition** may be a significant influencing factor which can be used by top management as a way of addressing such resistance.

"*Lack of qualified human resources*" in fourteenth position and "*Lack of material resources necessary for the application of comprehensive quality standards in the school*" in fifteenth are clearly linked to **Tools and Resources**. However, human resources not achieving a level of expertise which enables them to become qualified also relates to **Lack of Training**.

In this way, the seventeen significant obstacles listed in Table 8-22 were reduced to four major obstacles. Clearly, then, if these major obstacles are not effectively addressed, they significantly impact the level of implementation of TQM in the schools.

Table 8-23 presents the final summary of the interrelationship correlations obtained from the headteachers' insights.

Table 8-23: The Interrelationships between the top seventeen obstacles

Significant Obstacles	Ranking	Interrelationship with other obstacles			
		Lack of Top Management Commitment	Lack of Training	Lack of Tools and Resources.	Lack of Reward and Recognition
Inadequate knowledge or understanding of TQM	1	*	*		
Lack of training programmes	2	*			
Lack of top management commitment and belief in the TQM programmes	3		*		
Weakness in commitment to employee involvement and empowerment	4	*			
The absence of precise criteria for determining the level of performance required for the application of quality standards in the school.	5		*		
Weakness in focusing on customer satisfaction and expectations	6	*			
Poor organisational communication	7	*			
Lack of use of quality measurement and benchmarking	8		*		
Lack of infrastructure suitable for the application of TQM	9			*	
Inefficient information systems used in the company	10			*	
Inappropriate rewards and recognition	11			*	*
Weakness in commitment to quality strategy requirements	12	*			
Resistance of some staff in the school	13	*			*
Lack of qualified human resources	14		*	*	
Lack of material resources necessary for the application of comprehensive quality standards in the school	15			*	
Weakness in attention to a quality culture	16	*			
Expecting immediate results	17	*			
Total		**9**	**5**	**5**	**2**

Based on Table 8-23, from the allocation above it appears that four major obstacles can be extracted from the most significant obstacles in the following order of priority:

Lack of Top Management Commitment"; Lack of Training Programmes; Lack of Tools/Resources; and **Inappropriate Rewards and Recognition.** The comparative relationship between these major obstacles is presented in the figure below.

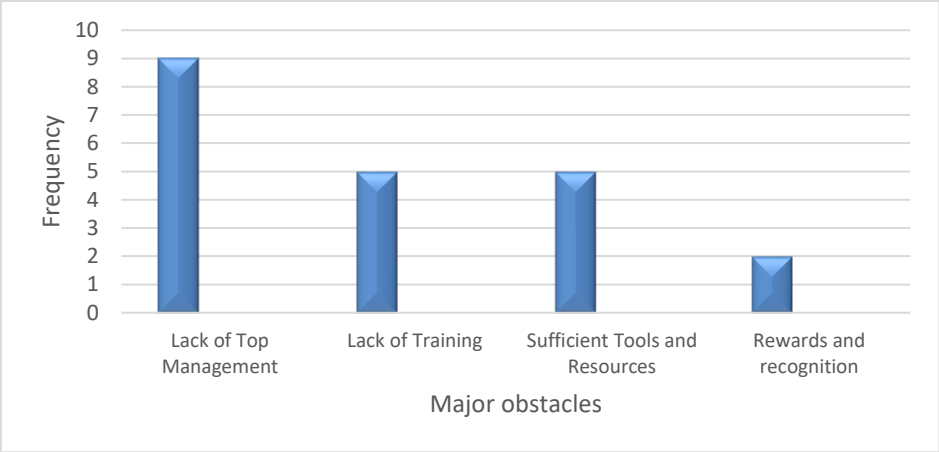


Figure 8-6: Major obstacles to TQM implementation in girls' secondary schools

These major obstacles can be defined as those that individually significantly hinder the implementation of TQM and that individually and collectively are also the root cause of many other significant obstacles that can be identified as limiting the effective implementation of TQM in schools.

8.5.2 **Validation of interview results**

In order to gather further information on the obstacles that hinder TQM implementation in secondary schools in Riyadh, Saudi Arabia, qualitative studies were carried out in two groups (senior officials from in the MOE and headteachers) using semi-structured interviews. The validation interviewees were three key personnel from the MOE and five school headteachers drawn from both the current study systems and from all five districts of Riyadh. The results from these eight representatives demonstrated that they have similar concerns and that lack of top management commitment and top management disbelief in TQM is the most significant obstacle.

The following analysis of the data collected and discussion draws together the major themes. These themes present the major obstacles to TQM implementation in Saudi Arabia, as shown in the following sections.

8.5.2.1 Lack of top management commitment

Table 8-24: Validation interview analysis of top management commitment

Factor	Issues	MOE			HT					Total
		1	2	3	1	2	3	4	5	
Lack of top management commitment and disbelief in TQM	1- Centralisation of decision making at MOE	*	*	*		*	*		*	6
	2-Reliance on a key individual with no clear succession planning[1]		*	*	*	*	*		*	6
	3-Lack of leadership and understanding of concepts of leadership and modern management techniques		*	*	*	*		*		5
	4-Using traditional (autocratic top-down; stick-and-carrot) command management processes		*	*	*	*			*	5
	5-Lack of effective communication between the leader and internal beneficiaries in the schools and external beneficiaries (Ministry) and lack of employee involvement and empowerment.	*	*	*	*	*				5
	6-Overburdened teaching schedules				*	*	*		*	4
	7-Resistance to change among teachers		*			*	*	*		4
	9-Emphasis on the superficial appearance of quality instead of the attention to substance		*		*				*	3
	10- Lack of credibility and accuracy in the self-assessment in TQM	*	*	*						3
	Total	3	8	6	6	7	4	2	5	41
		17			24					

The table above illustrates that the two groups pointed out almost the same obstacles related to top management commitment. The first issue that six of the eight representatives referred to is the "Centralisation of decision making at MOE*"*. The MOE respondent provided an example "*The MOE is making all the decisions on the allocation of budgets in schools*". The MOE representative did acknowledge that there have been some initial actions to empower the headteachers recently, but "*they are still quite restricted"* and there is a need to "*include a system of accountability at the school level to empower headteachers to make decisions more effectively"*.

Another interviewee, MOE 2, extended the scope of the issue with the view that "*The MOE should not just impose the orders but rather be an advisory body and offer valuable advice. Then we can monitor and give feedback"*. The MOE recognises that TQM can "*only be implemented with the conviction of empowerment, so it is important to support the headteachers"*.

Second was "A reliance on a key individual, with no clear succession planning". The MOE is concerned that there is a "*reliance on a key individual, who is entirely responsible for driving the programme or initiative in an institution. It is important that the emphasis is on the institution and not just an individual-led approach to avoid what happens now which is that when a new leader comes in, the initiative has to start again".*

Third**,** an issue recognised by the MOE representatives was that a "Lack of leadership and understanding of concepts of leadership and modern management techniques" was a significant barrier, with one MOE representative stating that *"Successful TQM implementation is based on good leadership. There is an absence of modern leadership strategies and therefore the importance of the leadership style is not considered".* An MOE colleague advises that there is a need for a *"continuous programme to assist in the rehabilitation of school headteachers in order to help them understand that they need to build their capability".*

This was emphasised by another representative, who advised that *"without good leadership, TQM fail so there needs to be great care in the appointment of a good leader who is excited to be in this position, believes in the change, has competence in conflict resolution and has strong personal attributes including empathy, honesty and probity".*

The fourth issue refers to the current leadership style, "Traditional (autocratic top-down; stick-and-carrot) command management processes". The MOE representative considered that "*if headteachers got rid of the autocratic management style, this would be the most significant evidence that TQM changes happen".*

However one headteacher explained that the top-down approach in the school is perpetuated by the MOE, because the MOE "*treat the headteachers with more respect and they have more prestige with the ministry than the teachers."* Thus, for some, "*headteachers and their personal ambitions"* reinforce the need to maintain tight control in the school with very little delegation. This is usual in the traditional command management style.

The fifth issue, "Lack of effective communication between the leader and internal beneficiaries in the schools and external beneficiaries (Ministry) and lack of employee involvement and empowerment" is related to the third and fourth issues.

One MOE representative considers that the implementation of TQM may be hindered because "*Good and effective relationships (communication) between the leader and internal beneficiaries in their schools and external beneficiaries must exist"*.

However, one headteacher notes that *"often headteachers' personal ambitions and goals do not include the growth and development of their staff; many consider the teacher as just a cog in the machine in the school and therefore do not involve the teachers or the administration staff"*.

Furthermore an official from the MOE is concerned that *"there are insufficient meetings between officials (key personnel) in the ministry and the leaders from all the department"*.

A second MOE representative agrees "*there is a communication gap between the schools and the MOE. In some cases the headteachers are completely unaware of the aims of the projects in the MOE*".

A headteacher comments that *"We are now aware of the quality culture initiative, but we still don't have any clear plans with specific dates and programs to achieve it*".

The **sixth** issue referred to is the issue of "Overburdened teaching schedules" and many representatives related this to the **seventh** issue, "Resistance to change among teachers".

One headteacher commented that there is often resistance to participation in the school initiatives: *"The teacher themselves choose to focus only on their own subject and do not get involved with the school"*. However one headteacher explains that some *"teachers have a very busy schedule with a high number of lessons"*, a view which was reinforced by most of the headteachers, who felt that teachers were already overburdened.

The penultimate issue is the concern that the "Emphasis on the superficial appearance of quality instead of the attention to substance" hinders the implementation.

An MOE representative states that in both institutions there is often a focus "*only on slogans of quality and there is no real application of quality*". This is supported by a

headteacher who stated that "*there is no real intent to put quality into practice, it is only necessary to make it look like this is happening in the schools*".

The final issue is the culmination of many of the preceding issues, the "Lack of credibility and accuracy in the self-assessment processes in TQM". All MOE interviewers expressed their concern regarding self-assessment: *"There is (a common) misunderstanding of the aim of self-assessment for the schools. The aim of self-assessment is not to present your school in a good way. They (the headteachers) do not actually wish to present the real situation of their schools. However, only if the MOE knows the weaknesses in each school can we then help and support these schools*".

8.5.2.2 Training and education

Table 8-25: Validation interview analysis of lack of training and education

Factor	Issues	MOE			HT					Total
		1	2	3	1	2	3	4	5	
Lack of training and education	1- Lack of in-depth and continuous training in TQM	*	*		*	*	*	*	*	7
	2- Limited scope of the training content	*	*		*	*	*	*	*	7
	3- Shortage of training programmes that include how to apply self-assessment and integration of TQM in daily work processes		*	*	*	*	*	*	*	7
	4- Lack of measurement of the impact and relevance of training	*	*	*		*	*	*	*	7
	5-Training presently limited to headteachers only	*	*		*	*		*	*	6
	6- Lack of qualified professional headteachers, staff and supervisors (inspectors).	*		*	*	*			*	5
	7- Lack of preparedness of the vice principals to support headteachers.	*	*	*	*			*		5
	8- Not sharing information ('silo-based') internally or in the school network	*				*		*	*	4
	9- Lack of on-the-job/onsite training		*			*	*		*	4
	Total	7	7	4	6	8	5	7	8	52
		18			34					

The above table illustrates that all the MOE and headteachers interviewees agreed on the issues that together make training a significant obstacle.

If we consider the statements that appear to have the highest number of references, the clustered issues cited by seven representatives concern "Lack of in-depth and continuous training in TQM". One of the headteachers stated that *"there is training but we still need the intensive training which is required for us to adapt to the current times"*.

In addition, regarding the "limited content of training", "the shortage of training programmes" and "lack of measurement of the impact", one of the headteachers stated; "*I have only attended one training course; this was too short, not informative and not sufficient. There was no opportunity to provide any feedback so there is no way to measure any impact of the training"*. Another headteacher added "*I have attended one training course, but this was not especially about quality or the mechanisms for TQM application, which is actually what we need. Also, we need to know how we can apply it practically, not only just in theory. For example it is not clear what the aim of self-assessment in the schools is nor is it clear what the MOE wants to achieve"*.

This is confirmed by one MOE representative who stated: *"The aim of self-assessment is not to present your school in a good way. If they [headteachers] presented the real situation in their schools, the MOE would understand the difficulties in each school so then it could help these schools*".

Second, one issue which was of concern to six representatives relates to "Training being limited to headteachers only". As expressed by one headteacher: *"There is the need for training and rehabilitation for all the staff, not just the headteacher"*. Another headteacher's perspective on this was: "*The training is only for the HT; the teachers and administrative staff have not had any training. It is very difficult to work as a team in a system if both parties have not had the same training"*.

Thirdly, the "Lack of qualified professional headteachers, staff and supervisors (inspectors)" and "Lack of preparedness of the vice principals to support headteachers". The headteachers and MOE representatives agree that *"There are a large number of schools' principals and teachers who lack the requisite qualifications"*. Another added *"There is a lack of preparedness among the vice principals. This is essential as a succession plan for the headteachers that retire; the vice principals should then be ready to fill the gap"*.

Finally, "Not sharing information ('silo based') internally or in the school network" and "Lack of on-the-job/onsite training". An MOE representative stated: *"The MOE needs to ensure that there is an adoption of training and that the training should include workshops as well as onsite training at a location that is experienced in TQM. We also need to ensure that the headteachers and teachers spread their knowledge to improve the skills of other managers and teachers and provide examples that can demonstrate the benefits of improvement".*

Indeed, one headteacher argues: *"If I intend to do the training course by myself, this is perceived as my personal initiative; it have no credibility and the teachers consider the additional work an unnecessary burden from the HT. If the training comes from the MOE it be recognised and therefore more accepted. So the MOE should prepare not only me but also prepare the whole team to work with me to get the benefit from the initiative".*

Headteachers referred to the issue of a "Lack of on-the-job training". One of the headteachers explained *"that we are not visiting other schools as part of the training to exchange experiences".*

This suggests considerable agreement that there is inadequate preparedness among the headteachers and their staff in relation to understanding and implementing TQM, which significantly impedes successful TQM implementation.

8.5.2.3 Tools and resources

Table 8-26: Validation interview analysis of tools and resources

Factor	Issues	MOE			HT					Total
		1	2	3	1	2	3	4	5	
Lack of Tools and Resources	1- No clear criterion for standards of recruitment for headteachers and staff at all levels	*	*	*	*	*	*	*		7
	2- Lack of a clearly defined quality system with an advisory body: with set standards and a baseline with tools to measure, track and monitor the progression of TQM.	*	*	*	*	*	*		*	7
	3- Centralisation allocation of funding programmes and inefficient management of budgets.		*	*	*	*				4

Factor	Issues	MOE			HT					Total
		1	2	3	1	2	3	4	5	
	4- Lack of adequate infrastructure and facilities such as offices, AC, class size, IT, cafeteria, library, etc.			*			*	*		3
	Total	2	3	4	3	3	3	2	1	
		9			12					21

The next highest concerns raised collectively by key personnel in the MOE and schools' headteachers relates to the lack of tools and resources.

If we consider the statements in order of the highest number of references from participants; first, referred to by 7 representatives, is "No clear criterion for standards of recruitment for headteachers and staff at all levels". The MOE respondents identified the need for a *"professional designation specifically for headteachers and the inspectors"* so that once they have undergone quality training they can *"distinguish themselves in the field of quality"*.

Additionally the participants from the MOE and headteachers both raised the issue of *"more emphasis on increasing the minimum standards of potential graduates for the selection of teachers as this is very important in raising the quality of education"*. One MOE staff member acknowledges that such work has started by *"introducing a level of professional testing for new teachers"* but says that it needs to address *"the previous generations of teachers who are already in the profession"*. However, another MOE interviewee says that testing for all teachers exists, but it is *"just at a general level because it does not measure the efficiency or capability of the teacher to teach at their specific subject level. In future this need to be introduced for each subject"*.

A headteacher agrees "*quality culture needs to be spread among all the staff to work together to implement TQM successfully"*. However the headteacher advises that *"whilst I am committed to supporting my team in gaining higher qualifications, I only have a small group of staff who want to gain the quality qualifications and are prepared to work together to produce quality. The majority, however, do not have the same mind-set"*.

A respondent from the MOE noted that this was a lesson learned from a previous quality initiative involving comprehensive assessment, when "*the selection of the inspectors was*

random and there was no training which led to poor application and results, which meant they cancelled this project". The interviewee concluded that *"TQM can't be applied in part in the MOE only. We should have quality in planning, curriculum, standards, workshops, leadership, teachers, administration ... the link between these is very important and I hope this is applied at a national level".*

The next issue expressed is the *"Lack of a clearly defined quality system with an advisory body: with set standards and a baseline with tools to measure, track and monitor the progression of TQM".*

The MOE interviewees are aware that they need to *"build a quality system which should contain standards, performance indicators and tools to measure what has been achieved and how far from or how close to these criteria the schools are".* As an example, one MOE staff member refers to self-assessment as the tool currently used to set a baseline, *"a first stage of which should include an explanation to the inspectors and schools so it is clear*". However there is no guideline in place so it is "*misunderstood by the schools, therefore it is not possible for the inspectors to provide a recommendation through an action plan".*

One headteacher agrees "*We do not have uniform standards in schools. I have applied TQM as a personal initiative using my own criteria. The MOE imposes it on the schools to set up a quality committee but without providing any guideline".* Another headteacher confirms this: "*We need as headteachers to have guidance and support from the MOE to help the school to understand how to implement TQM effectively."*

The third and fourth obstacles were "centralisation and allocation of funding programmes and "inefficient management of budgets".

The MOE representative indicated that *"Five years ago, there was an operational budget for all schools and it was successful but it had many flaws: [for example,] inequality in the distribution of the budget for some items, especially for general maintenance and facilities".*

A MOE colleague expressed the *"hope that we be able to empower the headteachers to use the budget more effectively as they best understand the needs of their school.*

However, with this responsibility there needs to be a system of accountability at the school level".

The headteachers, however, tend to have a variety of opinions. One states "*whilst funding is very important, I don't think it is an obstacle at this time. There is funding available but in the past this was not used effectively"* whilst another disagrees, claiming "*without funding we can't do anything. For example, in the first year of another initiative, Project Abdullah, there was no funding so we didn't run the projects as we do now".* According to another colleague, *"We were previously running the projects only with good, but now all the projects are properly funded so everyone is able to work better …"*

The final area is **"***Lack of adequate infrastructure and facilities such as offices, AC, class size, IT, cafeteria, library etc.*" The headteachers considered this a significant issue. One view expresses concern at the current situation: "*The building is very important for successful TQM implementation, but from my point of view the current government buildings do not meet the current needs; the new government buildings constantly need expensive repair and maintenance".*

Another headteacher is concerned that "*many buildings do not match the needed class sizes and the required facilities which the students, teachers and the staff need, such as offices, air conditioning, class size… etc. The new technology has not produced the expected results because many teachers are not comfortable or trained to use the technology. I have visited schools in Singapore and seen the differences (class size, ventilation, learning resources, cafeteria, teachers' room, etc.). I wish our schools were more like them".*

8.5.2.4 Reward and recognition

Table 8-27: Validation interview analysis of Reward and Recognition

Factor	Issues	MOE			HT					Total
		1	2	3	1	2	3	4	5	
Lack of Reward and Recognition	1- No recognition and reward scheme to incentivise promotion to headteacher level.	*		*	*	*	*	*	*	7
	2-There is no link between the remuneration and reward system regarding performance and the TQM initiative.	*		*	*		*	*	*	6

Factor	Issues	MOE			HT					Total
		1	2	3	1	2	3	4	5	
	3- External excellence award schemes are only for advanced levels, so it is discouraging for schools to apply.		*	*	*	*				4
	Total	2	1	3	3	2	2	2	2	17
		6			11					

The table above shows, first, that all seven participants identified that there was "no recognition and reward scheme to incentivise promotion to headteacher level".

The MOE representatives consider this issue a "hot button" and state that "*there is reluctance and no desire to fill the post of headteacher. If there were incentives for headteachers, then the position of headteacher would become more attractive".*

Second**,** all the representatives raise the issue that "There is no link in the remuneration and reward system between performance and the TQM initiative". As advised by one MOE respondent "*we need to ensure that there is a link between the job performance level and the level of incentives, salary and annual bonus*".

This point is further explored by a headteacher: "*Experienced teachers have become bored with their constant routine and not being acknowledged for their contribution, so they become disengaged as, without incentives, there is no distinction between good and not so good teachers*". A headteacher confirms that "*reward is a very important factor in motivating the staff to work to achieve quality".*

A headteacher warns that *"teachers are aggrieved about the lack of recognition because their earliest teaching years are not considered years of experience when salary and pension entitlement are calculated"*

A headteacher reiterates this view: *"I am very happy in my profession and what I have personally achieved. However at the same time the lack of recognition and incentive in the system is very frustrating".*

Furthermore, a key personnel member of the MOE contends that TQM should also be integrate: "*We need the adoption of a recognition and reward system for headteachers and supervisors based on their level of progress in the application of TQM".*

Finally, "external excellence award schemes are only for advanced levels, so schools are discouraged from applying". A headteacher states that "*the most significant obstacle at present is the very strict criteria for excellence awards (for students/teachers/directors). Most schools are just at the earliest stages of development. However, at the moment the quality criteria are not divided into levels; the Ministry is demanding that all schools reach the top level. This is incapacitating (very difficult) and very frustrating for the schools because they are not yet able to submit proposals against such advanced standards. So instead of being motivated many schools are running away from these awards".*

8.5.2.5 Findings on the main obstacles to the implementation of TQM

The result of this final analysis of the validation interviews confirms that **Lack of Top Management Commitment, Lack of Training, Lack of Tools and Resources** and **Inappropriate Reward and Recognition** are the four major obstacles to the implementation of TQM in girls' high schools in Riyadh. Therefore, these four obstacles need to be resolved by effectively implementing the corresponding Critical Success Factors.

8.6 Analysis, Interpretation and Discussion

In this section, the results from the literature review and the empirical study are discussed, along with the development of the conceptual frameworks and the implications for the research aim and objectives.

The Ministry of Education introduced TQM as a means of addressing the aspirations set out in Vision 2030 of developing the creativity, innovation and flexibility of Saudi Arabia's human capital and addressing the high levels of unemployment and the reliance on foreign workers. There needs to be a better understanding of the climate and the culture for people to be prepared for such a significant change and management needs to understand the impact of TQM on cultural norms, if staff are to reach the requisite level of readiness to accept the TQM philosophy.

The government has invested substantial funds in order to transform the educational climate. However, to date these have failed to deliver the promised benefits. Chapter 1

and Chapter 4 consider that TQM projects often fail when the interrelationship between the "hard" and "soft" dimensions are ignored. The soft cultural aspects include employees' attitudes and perceptions which must be aligned with the implementation of the hard investment in TQM.

The objectives of the study sought to determine what makes TQM projects succeed or fail, what obstacles and other factors affect the progress of TQM in girls' secondary schools in SA and how to assess the levels of readiness for or conversely the extent of resistance to TQM.

8.6.1 **Objective 1: to identify the obstacles and CSF of TQM implementations in education and develop the initial framework.**

The research examined the nature of the obstacles to TQM initiatives and identified the critical factors for successful implementation that can be used to assess an organization's readiness for then.

It is essential to surmount such major barriers as are found in the literature review. The study identified the main barriers using a method based on 'frequency of mention'. The findings confirmed that the barriers and CSFs are interrelated; in effect, obstacles represent the absence of critical success factors, making them, in other words, two sides of the same coin. The published research confirms these findings, The findings on CSF are confirmed by Hietschold, Reinhardt and Gurtner's (2014) analysis of 145 studies. These findings allowed the study to formulate the initial framework, which is depicted in Figure 8-7.

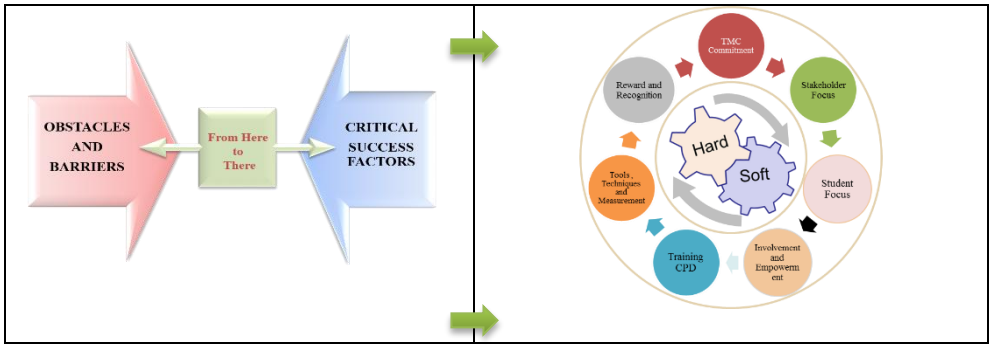


Figure 8-7: Developing the initial framework

The study proposed to survey employees' current perceptions of the TQM implementation and determine their readiness for change and also the nature of the

obstacles that they perceive are inhibiting their ability to implement TQM. These perceptions indicate the health of the TQM initiative in schools and help management confront employees' reluctance to proceed with the change programme (Weeks, Helms and Ettkin, 1995).

The levels of general awareness of TQM and of some of the CSFs identified in the literature review were tested in a preliminary study conducted in Riyadh with Ministry officials and headteachers.

The findings confirmed that perceptions overall indicate an early stage of TQM CSF awareness and some influencing variables, while the analysis of the interviews with Ministry officials highlighted the following CSFs and obstacles that negatively impact on the level of readiness for TQM implementation. These were used to develop the final framework, as depicted in Figure 8-7.

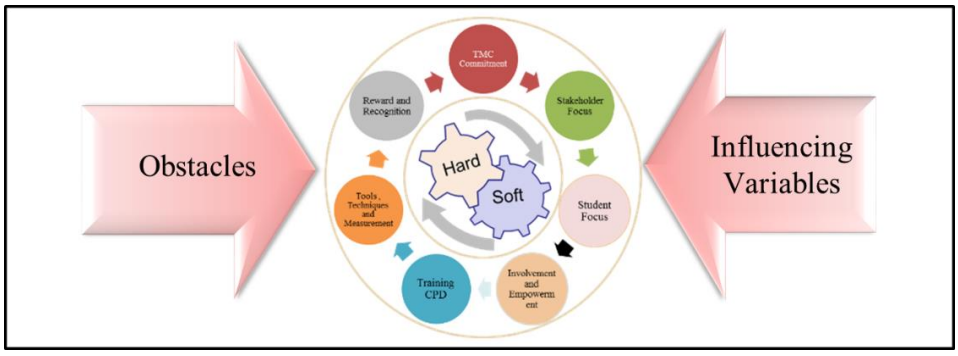


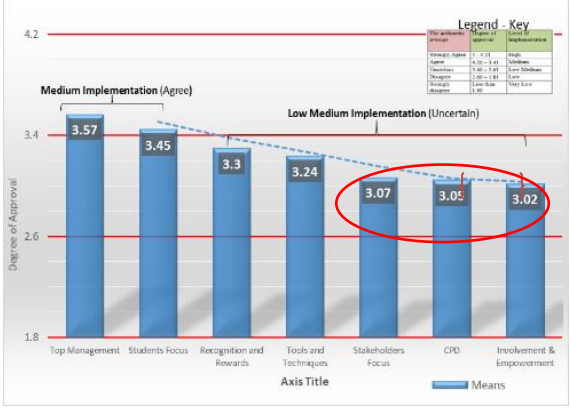
Figure 8-8: Final framework

8.6.2 Objective 2: To determine the perception of the implementation of TQM CSFs and obstacles in Saudi girls' education

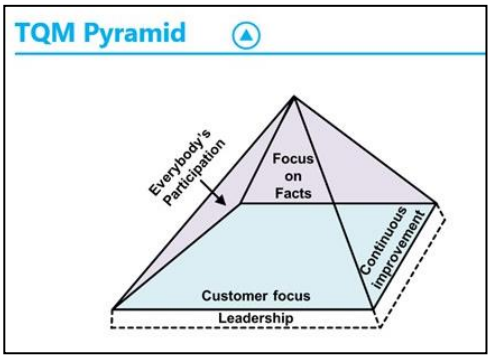
The research then carried out further investigation of these findings using the final framework and the study of perceptions. It was thought useful to investigate the effect of the influencing variables and obstacles on the perceptions of TQM, since this is an aspect that the published literature has not fully explored.

The first part of the survey collected demographic information on the respondents who then completed 36 cross-sectional statements related to the TQM CSF implementation of the principles, processes and practices in the second part. The results of this second part provided the mean values for each CSF statement. Each statement relating to a specific

CSF was grouped to obtain a CSF mean total. The grouped CSF survey mean values presented what appeared to be a TQM paradox when compared to the TQM Pyramid (see Figure 8-9).



Perception of CSF Implementation in Secondary Schools



(Dahlgaard, Kristensen and Kanji, 1995, p. 74)

Figure 8-9: Comparison of the CSF survey with the TQM pyramid

Figure 8-9 shows that the respondents perceived high levels of Top Management and Student Focus, while Stakeholder Focus, CPD and Involvement and Empowerment had the lowest perceived levels of awareness. Yet the TQM philosophy, as indicated in the TQM Pyramid, advocates that high levels of top management commitment should be accompanied by high levels of employee (respondent) involvement and stakeholder focus and participation.

These results are consistent with the findings from Soltani, Lai and Gharneh's study (2005) which "*overwhelmingly showed that managers did not take action to engage the employees to recognise the TQM philosophy and its benefits*". At the same time, when Rahman and Attar (2009) surveyed the role of employee involvement in quality management activities in Saudi manufacturing, they found that 68.3% of respondents strongly agreed that top management encouraged employee involvement.

For the TQM programme to achieve a level of successful change, the commitment to total quality needs to encompass the practice of the whole workforce, who must be encouraged to participate actively in the search for continuous quality improvement, making it a "bottom up" initiative (Lam, 1996; Mosadeghrad, 2014). Crosby (1989) highlights the idea that everyone in the organisation needs a common understanding of quality to understand their individual roles in providing quality. In the sense, maintaining

momentum requires a recognition of the importance of employee involvement (Mosadeghrad, 2014).

A further analysis of the results for perception shows the mean values of the 36 individual statements broken down into CSF sub groups, principles, processes or practices. The mean values of the individual CSFs in these 3 subgroups is presented in the figure below.

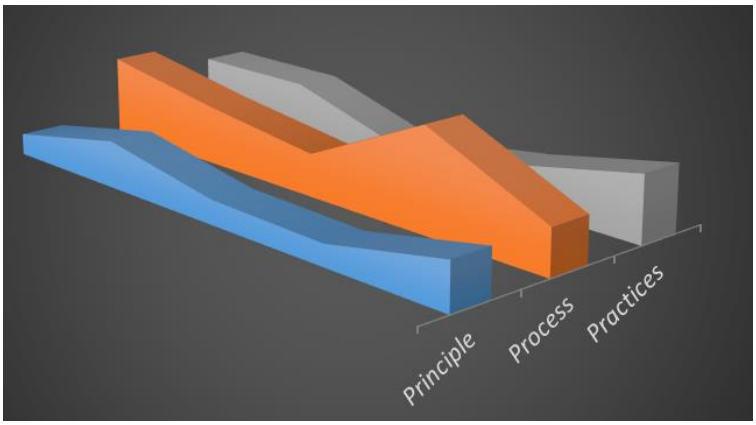


Figure 8-10: The perceived level of CSFs implementation in the schools

Figure 8-10 indicates that that "principle" demonstrated the lowest level of awareness and that generally there is a higher perceived level of awareness of process than of practices. This indicates that the respondents are aware of processes and performing practices but do not understand the reason or rationale for observing them. This is a pattern consistent with the traditional management approach of command and control but not of a TQM management approach that engages employees. Mosadeghrad (2014, p. 165) confirms that, among the criteria in recruiting headteachers and staff, "they *must be educated in TQM principles and practices. They should understand the principles of TQM and have the skills and knowledge required for managing the TQM change*".

The present study tested this assumption by analysing the proportional differences between "traditional" management and "TQM related" factors. Management Commitment, Student Focus and Reward and Recognition were coupled together, being already well-established in schools; Stakeholder Focus, CPD (Continuous Professional Development) and Involvement and Empowerment were grouped together as being representative of newer TQM related concepts. Tools were classified separately, since they are to be found in both traditional management practices and TQM. The average

means of these groupings were then compared. Figure 8-11 presents the proportional differences between the perceptions of the factors and indicates these more clearly.

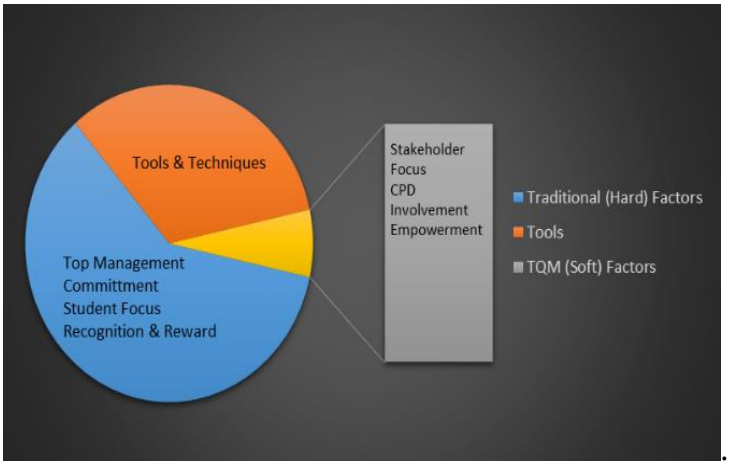


Figure 8-11: The range of the difference in the perception mean margins
(To show the traditional (hard), tools and techniques and the TQM (soft) factors)

The results, shown in Figure 8-11, highlight how much higher the levels of perceived awareness of the traditional tangible aspects were than those of the newer (softer) TQM related aspects of TQM.

This indicates that there is a perception bias in favour of the factors that are more familiar to staff from their current traditional work practices. The results indicate that there is positive Top Management Commitment and that Student Focus and Reward and Recognition are part of the current operational conditions. However, the perception of the softer critical factors to which TQM give a high priority, such as Continuous Professional Development (CPD); Stakeholder Focus; and Involvement and Empowerment, rates much lower. The results clearly highlight the strong likelihood that, with the traditional cultural reliance of teachers on receiving instructions, they do not yet realise the subtlety of TQM, which involves passing the responsibility and decision-making "baton" to them. The complex and dynamic interaction between the "soft" and "hard" may not yet be perceptible in the mindset of the teachers; they need to be alerted to this cultural shift and this new "thinking" needs to be activated among both the headteachers and teachers.

McNabb and Sepic (1995) add that, because the major challenge is leadership, leadership behavioural "soft skills" training needs to be emphasised from the outset if more modern leadership styles are to be encouraged and adopted.

Whilst the level of perception of Tools and Techniques was higher than for the newer aspects of TQM, it was still proportionally much lower than would be expected in a TQM environment, considering the substantial investments that have been made by the ministry.

Lam reiterates that "*Quality management often fails because it over-emphasizes the "hard" side of quality and neglects the "soft" side – the people – and forgets that it depends on broad-based employee involvement and commitment. All staff contribute to customer satisfaction through the quality chain and all the people in an organisation need to be motivated towards a common goal*" (Lam, 1996, p. 45).

Furthermore, the "soft" side emphasises the employees' commitment to quality and enhancing their job satisfaction which must be gained to encourage their participation in TQM. When TQM programmes fall short in this regard, it has serious implications for the future of TQM (Lam, 1996).

Overall the results indicate that at best TQM in schools is at a very early stage of implementation; indeed it would be reasonable to surmise that the incumbent culture is still firmly rooted in this context. The study investigated whether the results of the influencing variables and obstacles provided further insights and confirmation of this initial finding.

8.6.2.1 Influencing Variables

The analysis of the demographics in the first part was subjected to hypotheses to determine whether any variables were influencing the perceptions.

According to Kanter (1983, p. 281) organisational change is stimulated by the "*perceptions of the environment and those pressures held by key actors*". It is therefore proposed that perceptions of TQM implementation may be influenced by factors linked to organisational climate and people-related characteristics. The inferences (perceptions) which organisational members make about their organisation's climate are based on the policies, practices, procedures and routines that they are subject to, as well as on the kinds of behaviour that are expected from them and that get rewarded and supported (Schneider, Brief and Guzzo, 1994). The nature of the organisational system and the observable

practices and procedures impact on the individuals' and groups' perceptions (Denison, 1996).

Therefore, this study chose to analyse the demographics hypothetically to ascertain whether factors related to the climate or environment (location, type of building and study system) and to the people and key actors (job title, years of experience, education level) were exerting any influence on perceptions and whether this provided further insight into the paradox of high top management commitment coexisting with low stakeholder focus and involvement and empowerment, as well as a high awareness of processes. principles and practices.

The three accepted hypotheses confirm that there were three variables exerting an influence on the perceptions; two of these were related to respondents' assumptions about job title (Position) and years of experience, while the third was the nature of the study system. These first three variables have their source in the cultural beliefs of the traditional society and appear to conform to Schein's classification of embedded cultural "symbols" or "artefacts" that represent the significance of established assumptions and norms (Schein, 1985). These were explored further through semi-structured interviews.

8.6.2.1.1 Job title (Position)

The analysis showed that Job title (Position) of headteacher presented more favourable responses than the two other groups. The mainstream teachers presented the lowest scores, most especially regarding the factors of involvement and empowerment, focus on stakeholders and tools and techniques.

The result supported a significant association between staff job title (Position) and the level of quality management practice. It corresponds with the findings of Alaraki (2014) on implementation of CSFs in the public health sector in Saudi Arabia. The result supported the existence of a significant association between staff job title (Position) and the level of quality management practice. Nurses and physicians reported lower scores in their perceptions of TQM than other hospital staff did.

In addition, (Aksu, 2003)in his study to assess the level of TQM readiness in the Ministry of National Education in Turkey, established that job title is a significant variable for all

Saylor's (1996) nine dimensions and that senior roles typically respond more favourably to the nine dimensions than those who held less senior positions. Farhadi, Navabakhsh and Khayambashi (2012) examined the feasibility of establishing TQM in a spinning and weaving company in Iran; they also found that there were differences between the perceptions of managers and employees.

As the headteachers in secondary schools confirmed in the interviews reported in 8.5.2, they have been given more detailed information about TQM by the MOE and also have had more exposure to TQM-related training. Hence, headteachers have a degree of control which is more likely than that of their subordinates to prompt a favourable perception of whatever progress is being made with the implementation.

If there is no training, the administrative staff and teachers, however, have only the information and knowledge that the headteacher has allowed them to access. They have predictably less control over the information and the planned changes. This is evident in Figure 8-10, where their levels of understanding of principles were much lower, thus confirming the results for the perceptions of involvement and empowerment.

This relates to the mechanisms in the MOE for top down communication, where power and decision-making are centralised and issue from those with senior job titles. However, the findings contribute to the rationale that advises Training and Education together with Involvement and Empowerment to be considered a critical success factor alongside Top Management Commitment.

8.6.2.1.2 Years of experience

It would appear then that the groups with fewer years of experience have a more favourable opinion of the progress in Involvement and Empowerment, CPD, Stakeholder Focus and Tools than the groups with more years of experience. The results appear to indicate that younger respondents are generally more open to change. In addition, teachers or the administration staff in secondary schools with longer service also tend to have more responsibilities and a heavier workload.

Therefore, these results indicate that scepticism and uncertainty avoidance increase with years of experience and that the assumptions, values and beliefs that drive the patterns of

behaviour become more embedded with time. TQM implementation requires an investment in time and effort from staff to acquire the new information, learn new skills and engage with more people in different ways. This backs up the survey results and implies that teachers may be actively avoiding involvement, so as not to have the "baton" of responsibility and decision-making thrust upon them.

Lam (1996) comes to similar conclusions in his empirical survey in eight diverse sectors including construction, manufacturing and banking in Hong Kong. Mann and Kehoe (1995) and McNabb and Sepic (1995) confirm that mature respondents are aware of the increased burden of responsibilities.

Therefore, top management needs to be aware of these complex dynamics and provide a well-balanced work schedule for employees which allows them to increase their capacity and capability so that they can take on these extra responsibilities, thereby reducing their levels of job stress. Lam (1996) confirms that employees should be better equipped to handle the work by means of training and be motivated through incentives. Kanji (2007) warns that employees must be assured about the security of their work and the benefits to them during the change.

8.6.2.1.3 Study System

Only one aspect of the organisational climate, the system of study in the school, appears to have any influence on the opinions of the three groups; the location of the school and the type of building had no discernible influence on their perceptions of the level of TQM implementation in schools.

"Course study" schools, however, represent an intervention that since 2004 has given teachers and students greater choice and flexibility in the curriculum. The perceptions of the newer TQM statements among the course study respondents are more positive. The selected schools have had time to accept and develop a climate where teachers and headteachers take on more responsibility for the way that the curriculum engages students and stakeholders. This indicates that, although they are still controlled by the MOE, these schools have been more adequately prepared for the shift. In contrast, the mainstream schools appear either to be less prepared or to be resisting the intended cultural shift away from the current traditional ways of working.

Interestingly, Alyami's (2014) survey of the selected schools participating in the King Abdullah Project (Tatweer) show decentralised authority and more decision-making being passed on to headteachers. The headteachers report that their greater decision-making power and broader autonomy has enabled them to involve others in decision-making and this team working has reduced work pressure. Teachers confirmed their increased autonomy. The Tatweer Project indicates that high management commitment and acceptance of involvement and empowerment by teachers produces the desired cultural shift.

8.6.2.2 The obstacles that hindering TQM implementation in secondary schools

The empirical study confirmed that four major themes underlay the top ten obstacles perceived by headteachers: lack of Top Management Commitment; lack of Training, Tools and Resources and finally, inappropriate Rewards and Recognition.

In their comprehensive international research on TQM undertaken in the service, manufacturing and production sectors, Talib et al. (2011) identified the same major obstacles as did Al-Qahtani and Al-Methheb (1999) in their study in the public sector of Saudi Arabia. Furthermore, Alsughayir's survey (2014) of obstacles to TQM implementation in private medical service organisations in Saudi Arabia came to similar conclusions. These obstacles are:

8.6.2.2.1 Lack of Top Management Commitment

The present study confirms that the key contributing factors associated with Top Management Commitment as an obstacle are threefold.

- The centralised decision-making and control does not delegate accountability to headteachers; the MOE acknowledges that it lacks an appropriate system for transferring accountability to headteachers.
- Headteachers are concerned that they do not have any clear directions or objectives for TQM implementation but may implement only instructions and orders.
- The MOE is concerned about the headteachers' autocratic style and the lack of leadership capability. The MOE considers that *"a continuous programme is*

needed for rehabilitation of headteachers' leadership style". However, headteachers think such a programme should not be limited to them but should include all their staff and the MOE as well..

The findings of this study confirm that the organisational climate still retains **the traditional hierarchical organisational culture** of command and control and the natural autocratic management style associated with high power distance (Hofstede, 1980). Mosadeghrad (2013, 2014) and Shortell et al. (1995) argue that leadership styles based on command and control were a significant obstacle to the application of TQM in organisations. Top-down authoritative leadership style must be replaced with a more supportive, democratic, charismatic and participatory style that allows employees' involvement in the TQM programme to improve their performance.

Alyami (2014) in his study "Educational Reform in the Kingdom of Saudi Arabia" confirmed that TQM implemented through a centrally managed bureaucracy of red tape, regulations and circulars served only to overwhelm already overburdened headteachers.

Alruwaili (2013) in his paper "Total Quality Management in Education Directorates in Al jouf in Saudi Arabia", states that red tape and micro-management lead to apathy in headteachers who merely implement TQM "by order" but do not understand the principles or believe in the benefits.

Alshihri (2005) states that for TQM to be successful, the power to delegate must be paired with delegated authority in practice. Alyami (2014) and Meemar (2014) confirm that more significant progress towards change has been made in the King Abdullah (Tatweer) Project because the power to delegate has been introduced, with a corresponding increase in authority.

Gharib and Alfarah (2012) acknowledge, however, that so many qualitative changes need to take place in the education system of Arab communities that it is difficult to remodel everything at the same time. The initial emphasis in the Saudi education project has been focused on investing in the climate, infrastructure and qualifications, in developing a new curriculum and in related projects; in other words, in the hard, measurable aspects rather than in reforms of more complex people-related aspects linked to organisational structure, traditional administration systems, policies and management style practices.

Elmore and McLaughlin (1988) and Alyami (2014) also conclude that these reforms in particular need to be addressed before the obstacles to Top Management Commitment can be cleared. Zabadi (2013) reinforces the idea that these reforms must also include the introduction of modern management concepts in the leadership style.

8.6.2.2.2 Lack of Training

The study confirmed that the obstacle of lack of training has four underlying source contributors:

- There was an overall **lack of capability**, professionalism and expertise among headteachers. The ongoing collectivist bias encourages nepotism and favouritism, which means that many principals and teachers lack the requisite qualifications and it is difficult to plan for succession among headteachers. Alruwaili (2013) concludes similarly that appointments to significant posts and succession planning are granted preferentially rather than on the basis of merit.

- The TQM training was inadequate; it was too general and theoretical and not customised to take into account the differences in knowledge and capability of incumbent headteachers. Furthermore, the training was not supported by onsite workshops that could address this problem. A major issue is that the trainers are not appropriately skilled, either and do not have the requisite expertise. Al-Qahtani and Al-Methheb (1999) confirm that in Saudi public institutions training is inefficient, because most in-house trainers have had too little experience to address the complex TQM training programmes and the vital post-training consultations that are needed.

- Furthermore, only the headteachers are trained in TQM. The headteachers confirm that the lack of involvement of teachers in TQM training made it difficult for them to work together.

  Successfully implementing TQM requires managers and employees to have the appropriate knowledge, skills and expertise in the field of quality management. However, Saudi institutions do not generally oblige employees to have the adequate knowledge and skills to perform their jobs (Alnahdi, 2014). This also is also the case with TQM, where the specific values, knowledge and skills

associated with TQM issues and activities are also not prescribed (Mellahi and Eyuboglu, 2001; Mosadeghrad, 2014).

- The headteachers and teachers lack the softer interpersonal and capability skills that would enable them to communicate more effectively and work as teams. Dahlgaard and Dahlgaard-Park (2006) confirm that TQM focuses too much on training people in tools and techniques and too little on understanding the human factor, i.e. how to build the right company culture and the need for essential elements to be implemented, such as engagement and empowerment, stakeholder focus and recognition.

8.6.2.2.3 Lack of Tools and Resources

The results confirmed that the main contributory issues regarding this obstacle are:

- The budgets, resources and effective information systems which would assist the schools in implementing TQM were inadequate. Almannie (2015) indicates that ICT integration has been hindered by a lack of resources, infrastructure and enough ICT skills in secondary schools in Saudi Arabia.

  Although the Saudi government has made substantial investment and large budgets available, these are centrally managed and allocated. However, each school requires a different emphasis and they do not have enough flexibility to address their specific needs.

  As TQM involves high cost, effort and time, investment in these resources requires a system which measures benefits, monitors progress and addresses issues and obstacles quickly (Khan, 2011; Mosadeghrad, 2014).

- There was no uniform standard of quality or accreditation, such as ISO or Investors In People, that could be applied nationally to identify the achievement of standards for headteachers and the inspectors. Alaraki (2014) concluded in his study that a significant difference favoured the perceptions of TQM practices in in accredited hospitals over those in unaccredited ones in Saudi Arabia. According to Darandari et al. (2009), although the National Commission for Academic Accreditation and Assessment (NCAAA) in Saudi Arabia has adopted a principle-

based quality assurance programme and a management accredited training quality assurance system, this has been limited to universities and colleges and is not being used in the general education system.

- There is an absence of clear criteria or expected outputs which would ensure a consistent interpretation of TQM quality in schools; Al-Qahtani and Al-Methheb (1999) state that in the Saudi public institutions they studied employees were guided by no clear mission statement, policy statement or even benchmarking.

- There were no clear guidelines or benchmarking to show how to implement TQM standards and outputs. Atkinson (1990) and Mann (1995) argue that TQM projects frequently fail because of this lack of clear guidelines and implementation methods. The study by Darandari et al. (2009) of Saudi post-secondary education confirmed that it needed a quality assurance system, framework, tools, management structures and analysis to be communicated beforehand so that people would know the direction they were moving in, how it was different from where they were now, how it compared with other options and what the alternatives were.

TQM programmes fail when there is no clear direction or mechanism to measure progress in the direction of TQM and the presence of adequate resources. Rice (2003) suggests that employees are more likely to take "perceived" risks if they are confident about what is expected of them.

The Saudi culture displays High Uncertainty Avoidance, so the level of preparedness and support needs to be well planned to give employees a higher sense of self-efficacy and increase their readiness to make changes (Armenakis, Harris and Mossholder, 1993; Meemar, 2014).

8.6.2.2.4 Lack of Reward and Recognition

The study confirmed that the following issues were the main contributors to this obstacle;

- Headteachers and teachers were not motivated or incentivised to implement TQM. Since TQM requires considerable extra effort there is greater reliance on more capable resources, often the senior teachers with the most experience. However,

the hypothesis concluded that respondents with more years of experience were reluctant to take on additional responsibilities, since this would increase their work load.

- Teachers were already aggrieved by the past lack of recognition related to additional responsibilities, which increased their scepticism regarding the advent of TQM.
- Gaining promotion to the post of headteacher was difficult. The MOE stated "there is no recognition and reward scheme to incentivise promotion to headteachers". Therefore, the issue of reward and recognition is a significant one.

Systems that do not link employees' earnings to the achievement of quality objectives are obstacles to employee commitment to and involvement in TQM programmes (Cenek, 1995; Mosadeghrad, 2014). Alruwaili (2013) confirms that this negatively impacts on motivation and job satisfaction in the ministry directorates in SA.

In contrast, Allhumaidhi (2013) cited in (Meemar, 2014) found that giving principals privileged material, moral and financial incentives improved the school culture of quality performance. The MOE acknowledges that *"we need to build a quality system which should contain standards and performance indicators; performance should be measured and achievements under these criteria recognised and rewarded"*.

The NCAAA in Saudi Arabia in higher education and colleges has noted the importance of having a performance system with relevant recognition and reward systems that encourage standards of performance on a progressive scale of outcomes to be met and excelled.

The study determined that there are specific issues that the respondents have identified which describe their perceived obstacles. It is these issues that need to be addressed through the implementation of the Critical Success factors to improve the readiness to implement TQM. Only then can the employees take the next step towards a cultural shift away from traditional ways of working. Atkinson (1990) states that once the "culture gaps" have been determined, they need to be confronted in the programme of change management.

8.7 Recommendation

Employees' perception of their school's readiness for change is a critical factor in determining whether they resist or facilitate successful change management. The Theory of Planned Behaviour links the beliefs held by individuals to their behaviour. If these individuals perceive as negative the proposed change to their norms of behaviour and the new rules being enforced to change the way they do things, they are less likely to adopt these new concepts and resist the change.

Ahmed (1998) therefore makes it clear that it is the task of organisational leaders to bridge the gap between theory and practice and provide a culture and climate that delegates, nurtures and acknowledges innovation at every level.

Steers, Nardon and Sanchez-Runde (2010, p. 77) highlight how, when a new management philosophy is introduced from a different culture, the cross-cultural differences need to be recognised and that these differences are "*not a bad thing… they just require more work at times*" in order to address the complexity of the compromises that accompany new concepts. This is consistent with the theory of reasoned action that suggests that stronger intentions (commitment) lead to increased effort to perform the behaviour, which also increases the likelihood that the behaviour be performed.

8.7.1 Objective 3: To model the factors influencing the perception of TQM Implementation

- This study recommends that, to overcome the Lack of Top Management Commitment, the TQM programme must be institutionally led by the MOE with a ***clearly communicated strategy and detailed plans*** which are discussed with all stakeholders. The strategy needs to be evidenced with an ***organisational structure*** that demonstrates that the ***appropriate authority, decision making and responsibility have been delegated*** to headteachers. Further delegation of power, authority and responsibility is needed, with the gradual and progressive ***redesign of organisational system of policies and principles*** that enables the headteacher to ***effectively engage and involve her staff and other stakeholders*** with the appropriate resources to deliver the plan.

- The present study recommends that the Lack of Training can be overcome with a TQM programme strategy that adopts a comprehensive capability, not just a theoretical overview, but ensuring that the trainees develop ***accredited competencies*** in the ***key skills, hard and soft***, needed to implement TQM. Furthermore, the training programme needs to be supported by local ***onsite workshops*** to ensure that headteachers, teachers and administrative staff are able to apply the requisite ***knowledge and skills in the workplace*** and confidently ***resolve problems*** they encounter in delivering the TQM plans. This needs to be supported by headteachers who have a facilitative leadership style and are competent to manage the proposed system and the decision making in their schools. The approach would ensure the gradual and sustainable development of the TQM programme in each school which would also facilitate the succession planning.

- This study recommends that the Lack of Tools and Resources can be overcome if the MOE adopts a system that progressively introduces clear goals and objectives to advance the TQM Implementation in the schools. The objectives with targets and timelines should be accompanied by a checklist of expected outputs with key performance indicators for each. Tools, budget and resources should be allocated on a just-in-time basis for fulfilling specific objectives and reaching thresholds of performance.

- Further resources, budgets and training should be allocated according to the evidence and results obtained from the annual or periodic self assessments which need to clearly demonstrate evidence of compliance with checklists. Ad hoc assessments by independent inspectors can be used to confirm self assessed verdicts.

- The track record of the assessments over time is a vital tool for facilitating internal and external benchmarking in the schools, between regions and also between education and other sectors.

- This study recommends that the Lack of Reward and Recognition can be overcome by integrating a reward and recognition system ***with TQM***

achievement. When the Ministry sets the strategic TQM objectives, these are cascaded into the ***school's own objectives***. The Ministry can encourage the school to accelerate its readiness to engage in TQM by setting motivational ***financial and non-financial incentives***. This can encourage capable headteachers and teachers to ***become involved*** early and accept the "baton" of ***delegated authority and responsibility*** and motivate them all to ***achieve the standards*** set for TQM.

The above recommendations address the identified issues (influencing variables and obstacles) from the perception survey. The results of the survey highlight that the TQM Implementation needs to integrate an approach to change that includes the changes to the way of working in the ***Ministry as well as the schools***.

The change approach needs to consider that the current perceptions arise from the "frozen" embedded cultural values and that the associated norms and behaviours will not change unless the shared assumptions and espoused values (Schein) are replaced with the new ideals, values and behaviours. These need to be "unfreezed"; if there is a clear understanding and introduction of knowledge accompanied by the learning of new process and practices that is consistently reiterated until it can be "refreeze" in the new desired behaviours accordingly.

Change of this scope requires a more ***formalized systematic approach*** *(regarding policies and processes)* that clearly communicates that there is a "joined up" plan. It would indicate to the schools that the Ministry is committed to making this change permanent throughout the ***entire system.*** Only then the schools be prepared to put in the needed effort to commit to the TQM philosophy precept of "focus on customer and stakeholders". The scope of this change effort is represented in Figure 8-12 below.

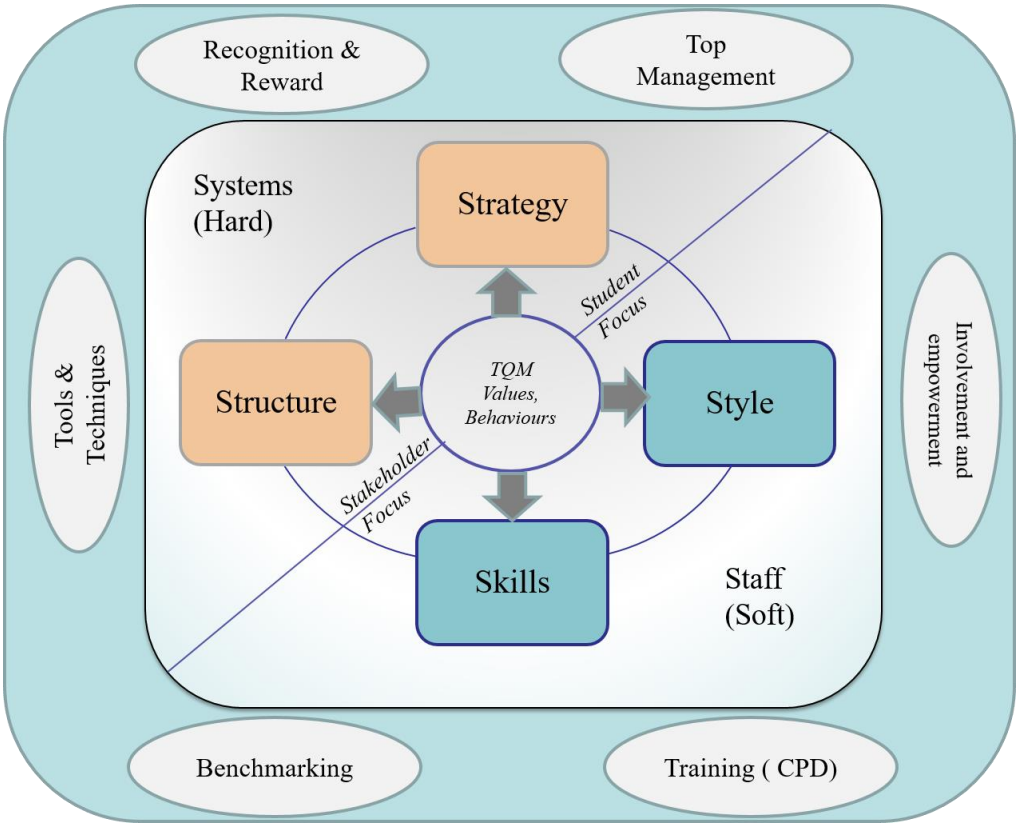


Figure 8-12: A "joined up" systemic approach to TQM CSF implementation (Adaptation of McKinsey's 7S Model)

Furthermore, a TQM programme of this scale requires a mechanism to measure the level of readiness for implementation that has been achieved by the TQM Implementation Change Programme, enabling continuous improvement to be made.

9 CSFs Maturity Assessment Framework

The perception survey baseline for TQM implementation has provide a subjective perceptual measure of the implementation level of the Critical Success Factors with insight into the influencing variables and obstacles perceived. It does not, however, provide sufficient information to assess the level of TQM Implementation Readiness. What is called for, therefore, is a mechanism that can interpret the baseline and produce objective evidence on which to determine the level of readiness and identify what further actions may be needed.

This study advocates that the P-CMM is the ideal model for developing and assessing the level of CSF readiness in the secondary schools of SA. According to Curtis, Hefley and Miller (2009), the P-CMM provides an evolutionary system of five stages in which the knowledge and skills of the CSF are gradually developed in a systematic way through the TQM processes. It was redesigned to meet the TQM objectives and higher quality standard of outputs with the support of resources, tools and techniques introduced "just in time". The capabilities and knowledge progress to a more advanced level, building on the previous knowledge base. Additionally, at the higher levels they become more difficult and complex and this means that complementary skills or domains of knowledge must be included. As these are put into practice, the TQM behaviours and attitudes develop with confidence. The study proposes that it is the key concept of maturity in knowledge and skills that bridges the gap between the organisation's Readiness Level and its TQM implementation.

9.1 Developing a Maturity Assessment Model

This study proposes an adaptation of the-CMM model using the Critical Success Factors as the core domains of capability; to overcome the major obstacles, it should be implemented in the specific order of steps established in Objective 3. The CSFs represent the essential domains of knowledge and capability in the proposed maturity model.

The literature review highlights the fact that the maturity models allow TQM knowledge and application to evolve from an initial base of ignorance to a future stage where knowledge is fully embedded with the desired behaviours. In each of these stages the key

domains of knowledge and the associated practices are introduced systematically in graduated steps which lead from immaturity to a state where all the mature coordinated disciplines are present.

The following section describes the generic concepts involved in this systematic development of a TQM CSF generic maturity assessment model based on the comprehensive approach of Hefley and Curtis, (1998) to developing the People CMM Based Assessment Method.

The literature review highlights that there are several challenges that need to be considered (Chapter 5). Since PCMM is an operational led programme, that means the employees are active members of the change management programme. The design and planning of the change programme intervention needs to consider the impact that this will have on the employees, as they will be required to do their normal day to day work at the same time as participating in the change management. Additionally, the selection of the representatives that will be involved in the change programme needs to consider this. Furthermore, the comprehensiveness of addressing all workforce practices can be a daunting prospect with limited success likely unless guidance in the form of the Capability Assessment Framework is established from the initiation of the change programme.

The Capability Assessment Framework has developed 495 practices and covers 22 process areas. It provides comprehensive guidelines to and instructions for preparing inspectors to design and implement the CMM compliance system (Hefley and Curtis, 1998), Appendices B1 & B2; CMM Appraisal Framework (CAF) Requirements and Compliance.

9.1.1 Generic development of the maturity model

9.1.1.1 Stage 1. Order of CSF implementation

The conceptual framework developed from the literature review in Chapter 4 identified the factors which are required to implement TQM successfully. The research survey revealed that there were several challenges hindering the implementation of TQM in the chosen area. Further analysis determined that a specific combination of the critical

success factors was needed to work together in a certain order to surmount the obstacles in the earliest stages and enable the TQM implementation to progress (Figure 9-2).

9.1.1.2 Stage 2. Stage of development

Since the order in which the CSFs should be implemented has been proposed, it is necessary to define in detail the knowledge of and the capability for each CSF that is required at each stage. This study defines a generic template for the TQM CSF that can then be used as a base template or framework to translate the knowledge needed to understand the CSF principles (the domain of capability) at each of the 5 stages of goal development.

The CSF Principles need to be translated into the specific goals which indicate the scope and boundaries for each level of maturity. Each goal is cascaded on to the objectives and their expected outputs. The processes to achieve this goal need to be designed and cascaded down the organisation and must be matched with the practice in action. The groups of processes/activities (process areas) necessary to achieve these objectives and deliver these outputs then need to be mapped in order to meet the target quality standards and attributes. When the practices achieve the goals they provide evidence that the maturity level has been achieved. The relationship between all the CSF objectives, process and outputs is demonstrated in Figure 9-1 below.

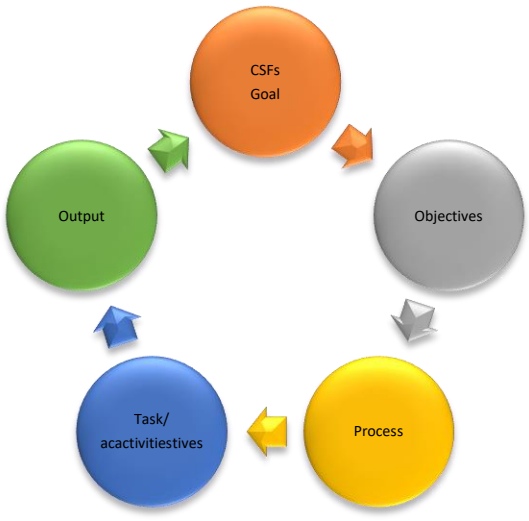


Figure 9-1: Representation of the process of cascading goals into tasks
Adapted from(Curtis, Hefley and Miller, 2001)

Hefley and Curtis (1998) in their Compliance Assessment Framework (CAF) indicate how the process area and the implementation practices needed to achieve the goals must each be defined by four criteria of attributes that measure the performance of these practices. These attributes are Commitment to Perform, Ability to Perform, Measurement and Analysis and Verifying Implementation. Evidence is needed that the practices are being performed according to the designed process area to meet the TQM requirements and ensure that the process is established, that it be maintained and that it not deteriorate over time.

- The evidence for Commitment to perform typically involves establishing organisational policies, executive management sponsorship and assigned responsibilities for advising on and coordinating the implementation of workforce practices.
- The evidence of Ability to Perform typically involves resources, organisational structures and preparation to perform the practices of the process.
- The evidence of the Measurement and Analysis typically involves measuring the status of the workforce practices performed, aggregating some measures from the unit to the organisational level and evaluating the effectiveness of the workforce practices performed.
- The evidence of Verifying Implementation typically involves ensuring that practices are being performed in compliance with policies, stated values, plans, laws and regulations; and that executive management maintains awareness of the level of compliance

This Maturity Assessment approach, if it is to effectively achieve the TQM objectives, needs to be planned, designed and developed in progressive stages before it can eventually address the entire operational system of the secondary school from the school to the ministry. The organisational structure needs to reflect these new objectives and processes and the new responsibilities assigned to the staff to perform these tasks and ensure that they are accountable for delivering their outputs to the required standard. In this way the TQM philosophy is embodied in the workplace. The application of this concept is graduated through 5 steps of maturity for each CSF, as depicted in Figure 9-2.

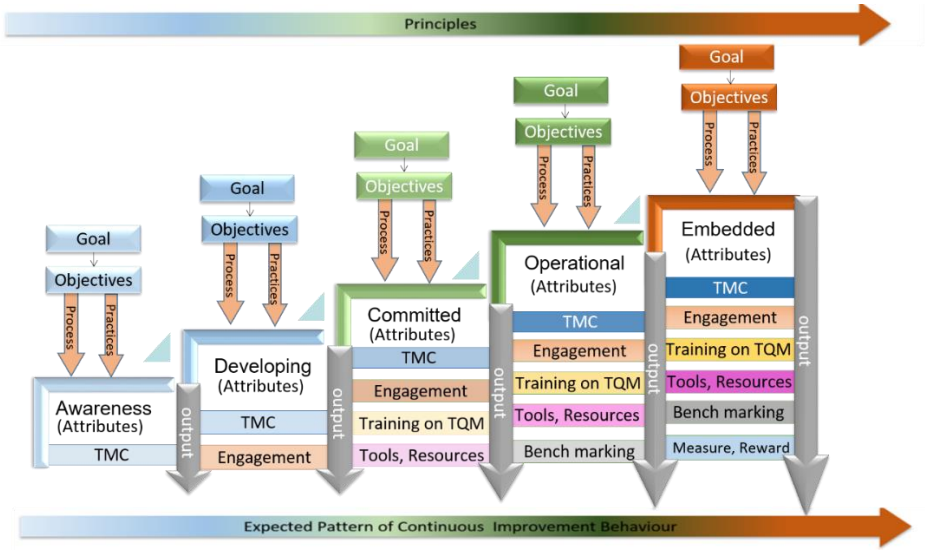


Figure 9-2: Conceptual integration of TQM and CMM concepts

9.1.1.3 Stage 3. Indicative CSF outputs during Implementation

The output for each CSF process need to be determined. The list of outputs represents the intended results of the completed process. Each school would need to tailor its model according to the gap that needs to be addressed between the current state and the desired future state. The objectives that are set would therefore influence the types of process that would need to be reengineered; therefore, when the processes are actioned, these become the practices for delivering the outputs that fulfil the intended objectives. An example checklist of TQM CSF outputs is given in Figure 9-3 below.

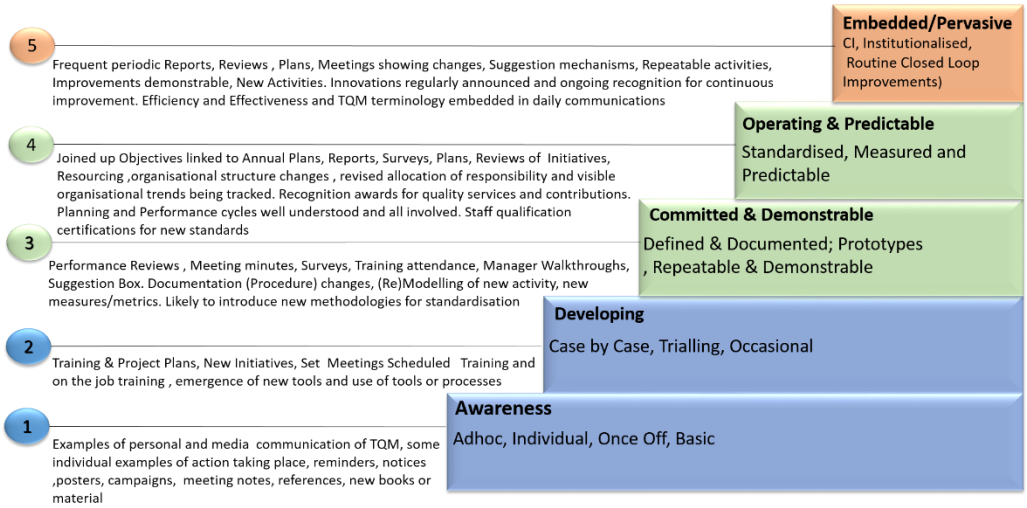


Figure 9-3: Expected indicative outputs at each stage of development for the CSFs

The expected outputs (detailed in Appendix I) are only a simplistic overview of a more comprehensive consideration of the Principles, Processes and Practices of TQM. This is a simulated example that serves as an indicative guideline only and should not be considered a ready to use end product. These Principles, Processes and Practices need to be clearly defined and documented as part of the TQM Implementation programme; the interpretation and translation of the TQM CSFs is unique to each organisation or transformation. A comprehensive level of detail is provided by Hefley and Curtis to clarify the detailed development of the Principles, Processes and Practices for 22 process areas and 495 practices (Curtis, Hefley and Miller, 2001).

9.1.1.4 Setting expected standards for each level of CSF

As the processes and outputs are established, the detailed target measures (Key Performance Indicators) of quality and performance need to be agreed to allow the level of proficiency expected (standards) for that process area to be circulated and the desired level of performance and productivity of the actions (tasks and activities) in each level to be communicated.

These targets measure the key criteria that indicate whether a competency has been developed, whether the outputs produced meet the objectives set and whether the maturity level of performance is achieved. They provide a recommendation and guide for further progress. The generic model describes the indicative level of performance only as it is presented in Figure 9-4 below.

Indicates Expected Maturity Level of	Indicative Level of Performance (Pattern of Behaviour)	Organisational Output Evidence (What you need to do and complete)
Awareness	Adhoc, Individual, Once Off, Basic	Examples of personal and media communication of TQM, some individual examples of action taking place, reminders, notices ,posters, campaigns, meeting notes, references, new books or material
Developing	Case by Case, Trialling, Occasional	Training & Project Plans, New Initiatives, Set Meetings Scheduled Training and on the job training , emergence of new tools and use of tools or processes
Committed	Defined & Documented; Prototypes, Repeatable	Performance Reviews, Meeting minutes, Surveys, Training attendance, Manager Walkthroughs, Suggestion Box. Documentation (Procedure) changes, (Re) Modelling of new activity, new measures/metrics. Likely to introduce new methodologies for standardisation.
Operating	Standardised, Measured and Controlled ,Predictable Action, Benchmarked, Case Studies	Joined up Objectives linked to Annual Plans, Reports, Surveys, Plans, Reviews of Initiatives, Resourcing, organisational structure changes, revised allocation of responsibility and visible organisational trends being tracked. Recognition awards for quality services and contributions. Planning and Performance cycles well understood and all involved. Staff qualification certifications for new standards.
Embedded/Pervasive	Continuous Improvement, Institutionalised, Routine and Experimentation - Closed Loop Improvements)	Frequent periodic Reports, Reviews, Plans, Meetings showing changes, Suggestion mechanisms, Repeatable activities, Improvements demonstrable, New Activities. Innovations regularly announced and ongoing recognition for continuous improvement. Efficiency and Effectiveness and TQM terminology embedded in daily communications.

Figure 9-4: Expected standard of outputs at each maturity level

9.1.1.5 Stage 3. Designing the measurement scale for the model

Measuring the levels of performance

This stage links a measurement scale to the above 5 levels of CSFs development. A **scoring system** needs to be assigned to the key performance indicators (criteria) to indicate both the **measuring attribute** and the expected target as a quantitative measure so as to compare the actual performance of the process and the actual output to the ones expected.

Weighting Scale

At each level of maturity, however, there may be some key process areas and outputs that are more important than others. In this case a certain minimum threshold in competencies, capabilities and output must be reached for all these key process areas before the standard of performance of a maturity level can be considered to be accomplished.

These key processes have a higher weighting than others. This study proposes that each of the maturity levels should be assessed using a quantitative scoring system with a tolerance threshold that can also be expressed qualitatively in terms of low, medium or high compliance at each level. This qualitative and quantitative scoring system is indicated in Table 9-1.

Table 9-1: Instrument measurement scale of performance with threshold weightings

MATURITY LEVEL ASSESSMENT CHECKLIST							
Indicates Expected Maturity Level	**Indicative Level of Performance (Pattern of Behaviour)**	**Organisational Output Evidence (What you need to do and complete)**	Threshold Range			**Weighting Factor**	**Evidence of TQM System Implementation**
			Low	Med	High		
Awareness (Level 1)	Adhoc, Individual, Once Off, Basic	Examples of personal and media communication of TQM, some individual examples of action taking place, reminders, notices ,posters, campaigns, meeting notes, references, new books or material	1-4	5-9	10- 11	2.5	Not Visible
Developing (Level 2)	Case by Case, Trialling, Occasional	Training & Project Plans, New Initiatives, Set Meetings Scheduled Training and on the job training , emergence of new tools and use of tools or processes	12-14	15-19	20	4	Visible
Committed (Level 3)	Defined & Documented; Prototypes, Repeatable	Performance Reviews, Meeting minutes, Surveys, Training attendance, Manager Walkthroughs, Suggestion Box. Documentation (Procedure) changes, (Re) Modelling of new activity, new measures/metrics. Likely to introduce new methodologies for standardisation.	15-19	20-24	25	6.25	Demonstrable
Operating (Level 4)	Standardised, Measured and Controlled ,Predictable Action, Benchmarked, Case Studies	Joined up Objectives linked to Annual Plans, Reports, Surveys, Plans, Reviews of Initiatives, Resourcing, organisational structure changes, revised allocation of responsibility and visible organisational trends being tracked. Recognition awards for quality services and contributions. Planning and Performance cycles well understood and all involved. Staff qualification certifications for new standards.	20-24	25-29	30	7.5	Predictable
Embedded/ Pervasive (Level 5)	Continuous Improvement, Institutionalised, Routine and Experimentation - Closed Loop Improvements)	Frequent periodic Reports, Reviews, Plans, Meetings showing changes, Suggestion mechanisms, Repeatable activities, Improvements demonstrable, New Activities. Innovations regularly announced and ongoing recognition for continuous improvement. Efficiency and Effectiveness and TQM terminology embedded in daily communications.	25-29	30-34	35	8.75	Established

The generic maturity model assessment and instrument scale provide both a checklist with guidelines and a measurement scale which grades the level of observable performance in relation to the target and produces a final quantitative maturity metric. The progress in the performance of these metrics over time can be monitored and tracked. The model also has a qualitative maturity guide so that the value of the measurement of performance can be described as low, medium or high in the level; this can be accompanied with recommendations from the checklist of what actions, processes or outputs need to be improved and can be made up of discrete steps towards achieving the desired output.

The model created is only a simulated generic model. To develop an accurate and complete model for application that is suited to the needs of the school or programme, guidelines for completion can be sourced in the SEI defined CMM Assessment Framework (CAF). This framework provides a comprehensive method for designing the models and assessment methods for different CMMs. A CMM-Based Assessment must satisfy 40 assessment requirements described in the CAF (Hefley and Curtis, 1998).

This assessment framework proposes that Lead Assessors should be trained to the SEI-authorized standards for P-CMM so that they can combine their current professional sector knowledge and apply it to the P-CMM using their professional judgement to guide team members in the appropriate mappings of practices to goals in the organisational circumstances.

9.1.2 **Linking the maturity model to the perception survey**

The Perception Survey of 36 statements in this study represents only a small sample of what each of the TQM CSF Implementation would include. This generic model provides a broader view of the objectives of the CSFs. Hence the checklist would embody a more comprehensive (but not complete) set of processes and outputs whilst the questionnaire statement would assess only one aspect of that CSF objective. The generic framework can be used to interpret the baseline obtained from the perception survey. It needs to be translated into an assessment tool and linked with a common comparator (measurement). Because the baseline values are derived from the questionnaire's Likert scales which measured the respondents' levels of agreement to the TQM CSF statements of implementation, the same Likert scale needs to act as a common comparator to bring together the perception and the maturity model by linking the level of agreement regarding the implementation in the perception survey to the indicative level of performance. The questionnaire sought the opinions of the respondents on whether the statements indicated what was being done or the way that things were done in their schools. The respondents selected from the Likert range – they strongly agreed or strongly disagreed, etc. that there was visible evidence that the statement was true.

Table 9-2 demonstrates how the Likert scale provides the correlation between the perception survey and the maturity assessment checklist.

Table 9-2: Linking the perception survey to the maturity assessment checklist

PERCEPTION SURVEY			BRIDGING THE PERCEPTION AND MATURITY SCALES		MATURITY LEVEL ASSESSMENT CHECKLIST	
Level of Agreement of CSFs Implementation	Level of Implementation of the CSFs	Likert Scale (Mean Value)	Evidence of TQM Practices	Evidence of TQM Practices	Indicates Expected Maturity Level	Indicative Level of Performance (Pattern of Behaviour)
Strongly Disagree	Low	>1.8	Strongly Disagree that this is being done	Not Visible	Awareness (Level 1)	Adhoc, Individual, Once Off, Basic
Disagree	Low Medium	1.8-2.60	Disagree that this is the way it is always being done	Visible	Developing (Level 2)	Case by Case, Trialling, Occasional
Uncertain	Medium	2.61 -3.40	Uncertain that these practices are demonstrable	Demonstrable	Committed (Level 3)	Defined & Documented; Prototypes, Repeatable
Agree	Medium High	3.41 -4.20	Agree that this is predictably the way things are done	Predictable	Operating (Level 4)	Standardised, Measured and Controlled ,Predictable Action, Benchmarked, Case Studies
Strongly Agree	High	4.21 -5	Strongly agree that this is always what is done	Established	Embedded/ Pervasive (Level 5)	Continuous Improvement, Institutionalised, Routine and Experimentation - Closed Loop Improvements)

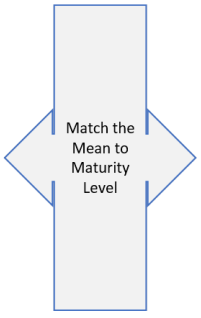
9.2 Interpreting the TQM CSF Baseline

The baseline perception scores (mean values) for each CSF established from the survey can now be matched to the framework to interpret the perceived maturity levels.

9.2.1 Stage 1. Matching the CSFs baseline to maturity checklist

The baseline mean for each CSF can be matched to the maturity assessment levels using the comparator as indicated in Figure 9-5.

Factor	Mean*
Top Management Commitment	3.57
Student Focus	3.45
Recognition and Reward	3.30
Tools and Techniques for Measurement	3.24
Stakeholder Focus	3.07
Continuous Professional Development (CPD)	3.05
Involvement and Empowerment	3.02
Total	3.27



Integrating the Perception and Maturity Assessment Levels	
PERCEPTION SURVEY	MATURITY LEVEL
Likert Scale (Mean Value)	Indicates Expected Maturity Level of
>1.8	Awareness (Level 1)
1.8-2.60	Developing (Level 2)
2.61 -3.40	Committed (Level 3)
3.41 -4.20	Operating (Level 4)
4.21 -5	Embedded/ Pervasive (Level 5)

Figure 9-5: Matching the baseline to the maturity levels

According to the survey, the perception level for Top Management Commitment produces a mean of 3.57. This on the maturity level indicates the operating stage (Level 4) of maturity. The value for Student Focus also corresponds to Maturity Level 4.

The perception survey indicates that the **perceived maturity level of TQM** implementation in the schools for all other CSFs range around Maturity Level 3.

The next step is to establish what evidence should be demonstrable or visible at this maturity level. The maturity assessment checklist indicates what level of output and performance should be demonstrated; it is shown in Table 9-3.

Table 9-3: Integrating the perception and maturity assessment checklist

PERCEPTION SURVEY		MATURITY LEVEL ASSESSMENT CHECKLIST	
Critical Success Factors	Mean (Level of Agreement of CSFs Implementation)	Maturity Level	Expected Outputs
Top Management Commitment	3.57	4	Joined up Objectives linked to Annual Plans, Reports, Surveys, Plans, Reviews of Initiatives, Resourcing, organisational structure changes, revised allocation of responsibility and visible organisational trends being tracked. Recognition awards for quality services and contributions. Planning and Performance cycles well understood and all involved. Staff qualification certifications for new standards.
Student Focus	3.45	4	Performance Reviews, Meeting minutes, Surveys, Training attendance, Manager Walkthroughs, Suggestion Box. Documentation (Procedure) changes, (Re) Modelling of new activity, new measures/metrics. Likely to introduce new methodologies for standardisation.
Recognition and Reward	3.30	3	Performance Reviews, Meeting minutes, Surveys, Training attendance, Manager Walkthroughs, Suggestion Box. Documentation (Procedure) changes, (Re) Modelling of new activity, new measures/metrics. Likely to introduce new methodologies for standardisation.
Tools and Techniques for Measurement	3.24	3	Performance Reviews, Meeting minutes, Surveys, Training attendance, Manager Walkthroughs, Suggestion Box. Documentation (Procedure) changes, (Re) Modelling of new activity, new measures/metrics. Likely to introduce new methodologies for standardisation.
Stakeholder Focus	3.07	3	Training & Project Plans, New Initiatives, Set Meetings Scheduled Training and on the job training , emergence of new tools and use of tools or processes.
Continuous Professional Development (CPD)	3.05	3	Performance Reviews, Meeting minutes, Surveys, Training attendance, Manager Walkthroughs, Suggestion Box. Documentation (Procedure) changes, (Re) Modelling of new activity, new measures/metrics. Likely to introduce new methodologies for standardisation.
Involvement and Empowerment	3.02	3	Performance Reviews, Meeting minutes, Surveys, Training attendance, Manager Walkthroughs, Suggestion Box. Documentation (Procedure) changes, (Re) Modelling of new activity, new measures/metrics. Likely to introduce new methodologies for standardisation.
Total	3.27	3	Performance Reviews, Meeting minutes, Surveys, Training attendance, Manager Walkthroughs, Suggestion Box. Documentation (Procedure) changes, (Re) Modelling of new activity, new measures/metrics. Likely to introduce new methodologies for standardisation.

9.2.2 Stage 2. Assessing the level of compliance of perceived maturity in the checklist

The maturity level indicated by the statement representing the baseline indicates a perceived level of performance which needs to be assessed whether the actual performance meets the requirements of the level of maturity under consideration.

This performance can be assessed in two stages. Initially each school can complete its own assessment which can then be verified by an independent assessment from an external inspector. The assessment check the in-house processes, practices and outputs

for compliance with the prescribed standards and documentary evidence of the outputs. This use the four attributes to demonstrate compliance. The completed self-assessment report with supporting evidence and commentary that confirm the actual maturity level can be submitted to the inspectorate for desk review before an onsite inspection or audit is undertaken.

Included in the self-assessment report be an indication of the gaps identified between the actual performance and the desired performance indicated in the maturity checklist attributes. The self-assessment report can then produce an action plan to implement the recommendations that the school has self-prescribed from the gaps.

An example of what may be reflected in the self-assessment report is indicated below.

An overview of the perceived baseline maturity obtained from stage 1 is presented in Figure 9-6

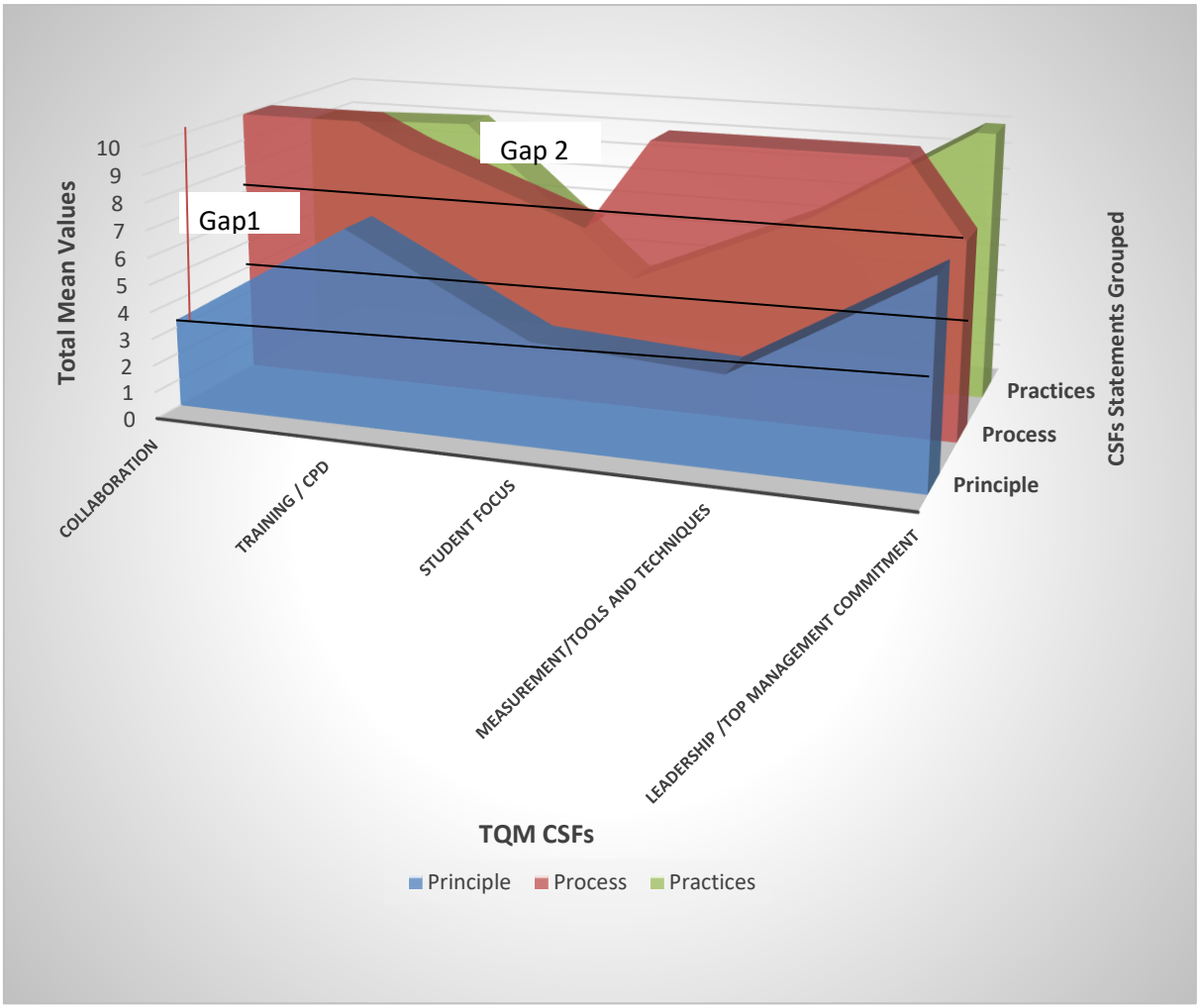


Figure 9-6: TQM Baseline results by CSFs principles, process and practices

The school have immediately observed that the first Gap (Gap 1 – Knowledge) is that the respondents have a higher perceived awareness overall of processes than of principles or practices, indicating that there is a lack of understanding of the associated knowledge (principles) and application (practices) in most of the CSFs. In addition, Gap 2 shows that there is inconsistent application of the Practices of Top Management Commitment: student focus, collaboration (involvement and empowerment & stakeholders focus) and measurement are perceived to be more evident than any other factor.

Hence the self-assessment can focus more attention on understanding the reason for the gap. In cases like this, where knowledge is limited, more attention can be given to assessing the current levels of training and proposals to improve or increase training.

9.2.3 **Indicating the level of readiness**

After the school has compared its actual outputs and the standards of its processes with the standards indicated, an example of its possible final findings from the maturity assessment can be presented as follows:

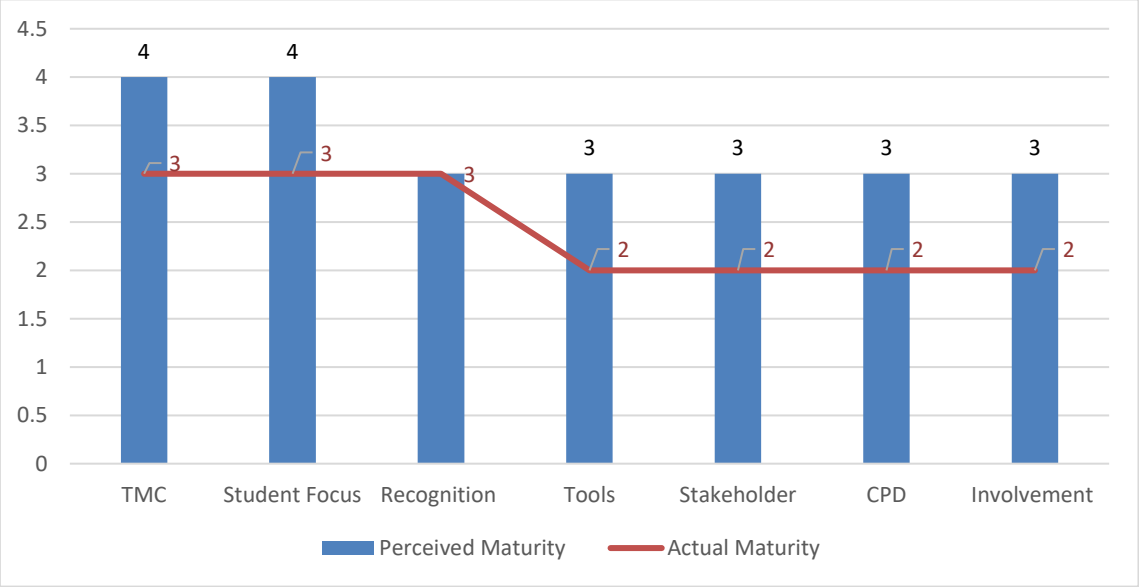


Figure 9-7: Comparison between perceived and actual maturity levels
(Simulated example of Self-Assessment findings)

Figure 9-7 above indicates that the school's assessment of its actual maturity is lower than the perceived maturity in all CSFs with the exception of Reward and Recognition. These findings reinforce the initial overview where the level of progress on processes made the respondents believe they had made more progress than they had. In other words their Indicated Level of Readiness is lower in fact than they had perceived it. Whilst they may have scored a higher rating on their processes, the scanty evidence of knowledge and the practices and outputs do not meet the required standards of performance – so this reduce their overall score, since knowledge and application have a higher weighting than documented processes.

9.3 Demonstrating how a school can improve its progress towards readiness for TQM implementation

Once a school has established its actual maturity and have evidence of the gaps, the Maturity Assessment Checklist can be used as a guide for each CSF to identify the desired improvements: what training is needed, what processes have to be improved and what

practices need to be implemented or exercised to attain the desired standards, address the gap and improve progress.

9.4 Action Plan of Recommendations

These recommendations are documented in the school's action plan with the time and resources needed and submitted to the Inspectors in preparation for the Inspectors' Desk and/or Onsite Inspection.

The consistent reviewing, monitoring and assessment (internal and external) facilitates benchmarking, comparing the progress of the TQM implementations between periods of assessment in an individual school and comparing progress between different schools or regions.

The progress can be clearly communicated through a visual track record for easier comparison and analysis. A further simulated example comparing the assessment of 4 different schools is demonstrated in the figure below.

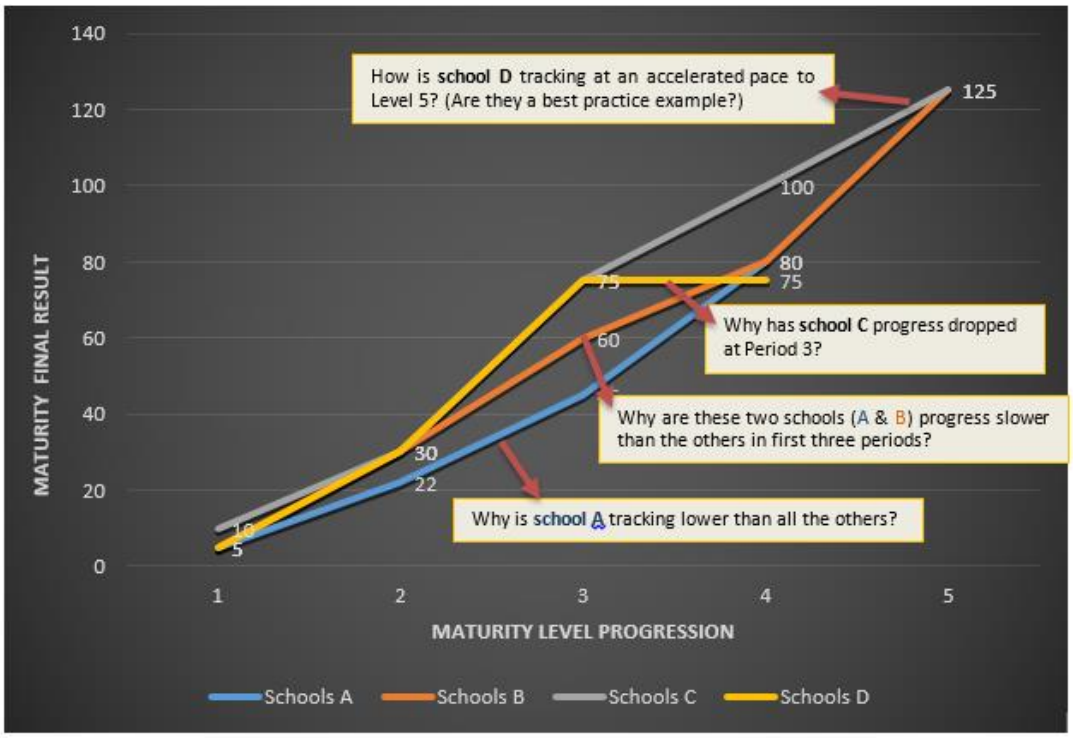


Figure 9-8: Simulated up-down representing maturity trend analysis

Figure 9-8 above, after 4 independent assessment periods, shows an example where after their final inspections the rate of development to maturity differs in a specific region

between the 4 schools labelled A, B, C & D. This information assumes that the rate of progress in schools may differ and indicates local examples of potential best practice that can be shared amongst the schools to improve progress or recommend candidates for recognition. However, it may also indicate that for some schools there may be a need for further review of the recommended investments in training, skills, infrastructure and/or expertise to help them surmount specific obstacles.

9.5 Summary

The final stage developed a mechanism to support the MOE and the schools in assessing the level of readiness to implement these recommendations for TQM by gradually developing their capacity and capability.

This study advocates that the P-CMM is the ideal model for developing and assessing the level of readiness to implement CSFs in schools. The P-CMM provides an evolutionary system in which the knowledge and skills of the CSF are gradually developed in a systematic way through the TQM processes redesigned to meet the TQM objectives and the higher standard of outputs with the support of resources, tools and techniques introduced “just in time”. As these are put into practice the TQM behaviours and attitudes confidently develop, in schools in Saudi Arabia as elsewhere.

A simulated CSFs Maturity Assessment Framework (CMAF) was designed using the CSFs surveyed in the questionnaire and a measurement scale linked to the Likert scale of the questionnaire so that the mean values could be interpreted. The simulation matched the total and the mean values of the individual statements survey, to determine the maturity level. The indicated maturity level checklist provided a guideline of expected outputs that would be evident at this maturity level.

In this simulation the limitation of the empirical study is that it does not include the inspection of the outputs; hence, there is no evidence that the expected standard of quality of the processes or outputs exists and therefore the scale of the gap is unknown.

The extent of this gap between expected outputs, practices (checklist and standards) and actual outputs indicates what knowledge (principles), processes or practices should be resorted to. This action plan and recommendations provide a quantifiable and specific

means to improve the levels of performance – as a plan with attached costs. The action plan requires that relevant resources and time can therefore be assigned and the budget justified for each school. Therefore the investments by the Ministry can be customised for each school to attract suitable TQM investment and this investment can now be measured in terms of the progress that is being made.

The completed assessment report supported by documentary evidence and commentary is evidence of the level of readiness. The report empowers the school to self-prescribe remedial action and is a vital tool to input into the budget and training plan to justify investment. The report can monitor the progress of continuous improvement and interventions, is measurable and clearly demonstrates and encourages accountability and responsibility. The CSFs Maturity Assessment Framework (CMAF) supports the TQM implementation with evidence of a tangible and visual track record that can be used to communicate and monitor progress over time. It also provides a mechanism for comparative analysis and benchmarking between schools across several periodic assessments.

10 Validation

The main aim of this section was to validate the proposed CSF model and baseline assessment with key officials from the Ministry of Education (MOE) assigned to the Saudi Girls' High Schools in Riyadh, Saudi Arabia. The MOE officials were considered the most important group in supporting the model, since they are responsible for implementing TQM according to the strategy of Vision 2030 and the inspectors act as mediators between the schools and the Ministry of Education.

The aim of these interviews was to ensure that the MOE officials would consider the developed TQM framework model appropriate for use in the above schools. These final interviews were to establish the degree to which those who influence policy and decision-making in the Ministry of Education in Saudi Arabia share the same perceptions as other stakeholders and to make sure that the TQM model was approved by the MOE. It was hoped that these key personnel would also make additional comments given their perceptions of the facilitating factors which might be included in the model and which would highlight any additional obstacles that might threaten the model.

Three officials in the MOE with knowledge of TQM policy and practice were interviewed. The interviews were conducted face-to-face and written notes were taken.

Before the interview each interviewee received an initial briefing pack presenting the model. The validation interviews addressed the relevance of the principles of the Critical Success Factors that underpin the framework and the CSF Maturity Model. Then the three key parts, the perception survey, influencing variables and major obstacles and the assessment checklist (with the instrument system) were reviewed in more detail.

When asked their opinions of the proposed model, the key personnel indicated their support. They all agreed with the CSF principles embedded in the model findings and recognised the relevance of the obstacles and influencing variables.

Furthermore the key personnel interviewed agreed that the model met the necessary criteria for effectiveness, functionality, completeness and usefulness. The results of the interviews and the questionnaire feedback from the key personnel are presented as follows:

10.1 EFFECTIVENESS

Overview of the effectiveness of the model: The model shows the baseline of TQM implementation based on the respondent's perception. The level of compliance between the actual and expected level of performance measures the gaps at each stage using set standards and criteria. Additionally the guidelines indicate what improvements are needed at the individual school level so that a specific action plan can be developed to progress the implementation. The results can also be used to rank the level of progress of schools as well as to provide a mechanism to recognise and reward progress and benchmark good practice to motivate and improve progress in the schools.

Question: Does the model provide an effective mechanism to provide relevant recommendations for improvements both quantitatively and qualitatively?

Response: All interviewers responded by Agreement.

Table 10-1: Validation Responses for (CMAF) Model Effectiveness

MOE 1	MOE 2	MOE 3
"The MOE needs to determine the actual level of TQM implementation in the schools and what desired level of quality needs to be achieved by the schools". *"This is what has been achieved by your survey and the Maturity Model in your presentation".*	*"It is essential that the MOE builds a quality system that embeds standards, performance indicators and tools to measure what has been achieved to date and the extent of the gap between each school and the set criteria. This enable the MOE inspectorate to produce recommendations that facilitate an action plan which is produced by each school. It is this process that enable us to implement TQM in education effectively".* *"Your model summarises the system of assessment and the maturity model effectively and also baselines the school's current TQM implementation position very well".*	*"Your model is very clear; it starts from the general and then provides many more details. In addition, it's simple, not complex so it's easy for both the inspectors and schools to follow it".* *"For example, in a short time I understood it; and really liked it".*

10.2 COMPLETENESS

Overview of the completeness of the model: The model provides a framework with clear stages, guidelines which show the standard and criteria for the expected outputs. It includes distinguishing attributes and characteristics and a demonstration to show how the tool with instrumentation scale can be applied using real data from the perception survey. The interpretation guidelines demonstrate what information can be determined and how recommendations can be made and used.

Question: Does the model provide complete guidelines with relevant attributes and characteristics in relation to the respective levels of stages of development maturity necessary for meaningful TQM implementation in the schools system?

Response: All interviewers responded with Agreement.

Table 10-2: Validation responses for (CMAF) Model completeness

MOE 1	MOE 2	MOE 3
"Your model provides a set of tools with processes, guidelines and indicative ratings. It provides examples of how this can be applied in a school system".	*"Your model is very good and comprehensive and you have a mechanism to recognise the barriers".*	*"Your model is complete and comprehensive. This can not only enable the school to achieve quality but also excellence. Although there are excellence awards in the MOE, I don't think they would be able to measure the progress of the school in TQM implementation as effectively as your model".* *"I have participated in many excellence award schemes as a member of the awards jury panel; they are not as comprehensive as yours. In addition, these awards don't have the different kinds of standards and criteria that yours does".*

10.3 FUNCTIONALITY

Overview of the functionality of the model: the model has been applied in practice (empirically) using simulated data collected from schools and the indicative results have been interpreted using the checklist and the rating scale. The results demonstrate the actual maturity stage of development of TQM CSF implementation in the schools from which specific recommendations can be proposed to improve progress. The results from each school can be brought together to present a regional perspective; this can provide a valuable perspective for potential regional recommendations.

Question: Does the model as presented provide sufficient direction and guidance for functionality to be satisfactorily used in the ministry to assess the stage of development maturity in TQM CSF implementation?

Response: All interviewers responded with Agreement.

Table 10-3: Validation responses for (CMAF) Model functionality

MOE 1	MOE 2	MOE 3
"Your model is using actual data which has been collected and shows clearly the results that can be obtained by using the guidelines and the tools".	*"Your model enables TQM to be driven as an institutional work; this overcomes one of the most significant issues which is that there is often a reliance only on a key individual in a school or institution who is responsible for*	*"Your model is complete and comprehensive; I don't think the schools and inspectors would be able to measure the progress of the school in TQM*

MOE 1	MOE 2	MOE 3
"The results clearly demonstrate the maturity level in TQM implementation and how to address any gap". *"We need to adopt a recognition and reward system for headteachers and supervisors based on the level of progress in the application of TQM. This tool can help with this".*	*driving the programme or initiative in that institution. So when a new leader comes in the initiative has to return to zero (start from scratch)".* *"Your Maturity Model assessment is clearly referenced and can indicate the detailed progress of a school as an institution".* *"As all the schools and the ministry can use the same guidelines the schools can be monitored and tracked by the ministry to ensure that the practices are consistently maintained and actually being embedded if and when there are changes at senior levels".*	*implementation as effectively as your model".*

10.4 USEFULNESS

Overview of the usefulness of the model: The tool would support the MOE and the inspectorate by providing a consistent common method which presents the current stage of TQM implementation. The model, its stages and guidelines could be used to develop a training programme of modules as well as a guide for onsite support for the schools to help them to better understand how to progress and coordinate their current TQM projects. The detail in the model and the sequence given for the application of the tool can also support the MOE in providing greater clarity for all stakeholders regarding what changes are expected from them in TQM implementation with a practical demonstration which can help them understand these changes and potential benefits.

Question: Does the model provide a useful tool which can be used by the ministry and, if so, when would you consider implementing the use of this tool?

Response: All interviewers responded with the Agreement.

Table 10-4: Validation responses for (CMAF) Model usefulness

MOE 1	MOE 2	MOE 3
"There has to be a continuous programme to assist in the retraining of school headteachers in order to help them understand that they need to build their capability to achieve the new quality criteria and help them overcome resistance to change. This model of yours provides that mechanism".	*"A very useful and wonderful model. The MOE should start to use it from now on. All of the departments of the Ministry of Education could apply it in the schools. In addition, this model is very helpful in the classification of schools and can help the ministry build a development plan for the overall quality required".* *"The tool provides a clear indication of what is expected from TQM*	*"At present there is no systematic method used by the ministry for the evaluation of quality, which makes it difficult to baseline and measure progress; this especially applies to self-assessment by schools. The self-assessment forms are completed in a random way".* *"The schools are applying self-assessment but there are no consistent*

MOE 1	MOE 2	MOE 3
"The Maturity Model in your system requires the school to define, document and standardise. So this ensures that headteachers share information and teachers spread the knowledge in the school which improve the skills for all managers and teachers; it can also be used to provide examples that can demonstrate the benefits of improvement".	*implementation and is easy to use and practical for all in the ministry and the headteachers, as well as in the schools. It helps all to clearly see the expected changes required of them and benefits gained when implementing TQM".*	*measures; possibly we have not selected the right criteria".* *"In addition, self-assessment is misunderstood in the schools who currently view this negatively. So this means that we cannot measure effectively and therefore this approach at present does not have any credibility.* *"But by using your new method, the ministry would definitely benefit from your model and the clear guidelines for self-assessment would help the school to know how this apply throughout the rest of the assessment".*

The interviewee' responses reflect that they see the CMAF Model positively and consider it effective, complete, functional and useful and are confident that it is a suitable tool for use in TQM implementation in SGHS in Saudi Arabia.

10.5 ADVANCEMENT

In the final part of the validation interviews the key officials were asked for their opinions on how to enhance the model development.

Question: What would enhance the value of this model to the ministry?

Responses: These are presented in Table 10-5. Their responses made mention of further barriers which should be included in the application of self-assessment in the schools. They indicated that the link between job performance and reward and recognition needs more attention and that the proposed criteria for standards could be applied to the Excellence Awards to encourage more schools to participate. Furthermore, the good practices already established in the ministry and schools can also be used to enhance the model.

Table 10-5: Validation responses for further (CMAF) Model development

MOE 1	*MOE 2*	*MOE 3*
"We need to ensure that there is a link between the job performance level and the level of incentives, salary and annual bonuses".	*"We have good practices; we should use them as benchmarks".* *"This model's criteria could be included as a separate award category in the Awards of Excellence in the ministry which has a role in improving and raising the level of quality in schools".*	*"In order for this model to be applied, there would need to be alignment with other models used in the ministry; you would need to cooperate with them. It would need to be presented to the relevant stakeholders and how this model serve the public*

MOE 1	*MOE 2*	*MOE 3*
	"There are many awards in many different cities in KSA; this model can be used as a common model from which entrants from all the cities can compete for the MOE Award for Excellence. These awards are very prestigious and the prizes very worthwhile and consist of BMW cars. Furthermore there is the King Abdulaziz Award which has a very high standard; if the school has reached operational or embedded level they be ready to apply for this".	*interest would have to be demonstrated".*

10.6 Summary

In summary, the purpose of the CSFs Maturity Assessment Framework (CMAF) Model was to provide a mechanism to help the SGHS measure their perceived and actual current level of TQM implementation and support them in improving progress towards the promised TQM benefits expected from the strategic investments made in the education sector by the ministry.

The validation interviews indicate that there is confidence that the CMAF Model is functional and useful and can provide an effective mechanism to support the MOE and SGHS measure, track and monitor their readiness for TQM implementation, providing guidelines for further progress. Additionally, the key personnel feel that the tool merits further development and should be improved with further integration into the ministry, with stakeholder approval.

Three MOE officials, decision-makers in the TQM initiative, reviewed the model and were asked their views on the validity of the baseline, its interpretation using the CSFs Maturity Assessment Framework (CMAF) model and the relevance of this tool for use in girls' secondary schools in Saudi Arabia.

11 Discussion and Conclusion

This chapter aims to demonstrate the final conclusions of the research reported in this thesis. The chapter presents the following:

Section (11.1): A summary of research findings.

Section (11.2): Contributions to knowledge and the novelty of the research.

Section (11.3): Research Limitations.

Section (11.4): Future work.

Section (11.5): Conclusion.

11.1 Summary of Key findings

This chapter summarises the conclusions for each objective of this research which emerged from the findings in Chapters 8 and 9.

11.1.1 TQM implementation framework (Baseline)

The study conducted a survey based on the initial framework analysis to baseline the respondents' perceptions of the level of TQM Critical Success Factors implemented in their schools. The perception results overall indicate an early stage of TQM CSF awareness, which was confirmed in the interviews with Ministry officials. Furthermore, the results presented what appeared to be a TQM paradox when compared to the TQM philosophy. Respondents perceived high levels of Top Management and Student Focus, while Stakeholder Focus, CPD and Involvement and Empowerment had the lowest perceived levels of awareness. TQM philosophy, as indicated in the TQM Pyramid, advocates that high levels of top management commitment would be expected to be accompanied by high levels of employee (respondent) involvement and stakeholder focus and participation. This would indicate that respondents are evaluating a traditional management approach rather than the new TQM type management.

Further analysis highlted that the perception of "principles" demonstrated the lowest awareness. Respondents are more aware of processes in particular and performing some practices but are not aware of the rationale for them. This would appear to further confirm

that the traditional management approach of command and control is still embedded in education.

The study identified that there were specific influencing variables – Job Title, Years of Experience and Course Study System – that influence the respondents' perceptions. These underlying assumptions and artefacts are consistent with the current mainstream culture. Finally the study established that there were four major obstacles perceived by headteachers that were hindering their implementation of TQM: lack of top management commitment; training; tools and techniques; and rewards and recognition.

Overall the results indicate that at best TQM in schools is at a very early stage of implementation; indeed it would be reasonable to surmise that the incumbent culture is still firmly rooted in this context.

Furthermore, the perceptions indicate that there has been a greater focus and investment on the more tangible, harder factors of TQM in the Girls' Secondary Schools and less emphasis on the softer aspects, resulting in the low perceptions of involvement and empowerment and stakeholder focus. The complex and dynamic interaction between the "soft" and "hard" may not yet be perceptible in the mindset of the teachers; they need to be alerted to this cultural shift and this new thinking needs to be activated among both the headteachers and teachers.

The study proposes that, in order to overcome these major obstacles and facilitate this mind shift, the Critical Success factors need to be implemented in a specific order to improve the readiness level of TQM implementation to make the next step towards a cultural shift away from traditional ways of working.

11.1.2 **CSFs maturity assessment framework**

The perception survey baseline for TQM implementation of the Critical Success Factors and this insight indicate that there is a perceived low level of TQM Implementation Readiness. This provides a subjective perceptual measure.

The final stage of this study, therefore, is to develop the mechanism to support the MOE and the schools in objectively assessing the level of readiness to implement the TQM

Change programme by demonstrating the level of capacity and capability achieved throughout the whole mainstream school system.

A simulated CSFs Maturity Assessment Framework (CMAF) was designed using the CSFs surveyed; it was based on the P-CMM which provides an evolutionary system in which the Principles, knowledge, Practices and skills of the CSF are gradually developed in a systematic way through the TQM Processes redesigned to meet the TQM MOE objectives and achieve a higher standard of outputs with the support of resources, tools and techniques introduced "just in time". The indicated maturity level checklist provided a guideline of expected outputs that would be evident at this maturity level. This checklist provides the basis for objective self-assessment and building self-remedial action plans that justify the specific investments needed, close the gap between actual and desired performance so as to raise the level of readiness and embed continuous improvement.

As the maturity of these skills and the recognition of visible progress increases so the accompanying TQM behaviours and attitudes become more apparent. In this systemic approach it is possible to manage a balanced integration of the hard aspects and the development of the soft skills with confidence in a gradual way that can transform the education culture in the Islamic based value system and allow all individuals, leaders and employees to develop confidence in TQM that is suited to the secondary schools in Saudi Arabia.

11.2 Contribution to Knowledge

The findings highlighted in the previous section make an innovative contribution to the theoretical knowledge, under the Saudi Ministry of Education, of TQM Implementation. The study also makes a contribution to the Research Community and Change Practitioners by addressing the gap between theory and practical implementation of TQM concepts in education and extends the scope of TQM implementation to the Capability Maturity Model, using the concepts of TQM in a specific order. These contributions are discussed in the following sections.

11.2.1 **Ministry of education**

The present study contributes a useful body of knowledge for educators in SA and should lay a foundation for further research to existing knowledge with its framework of critical success factors, the order of their implementation and a mechanism to implement these as practices forming part of an accreditation programme.

To the researcher's best knowledge, there has been no previous effort to examine the perceptions of TQM in the Kingdom's secondary schools. The study identified that integrating the hard and soft factors of TQM from the outset is necessary to overcome the major obstacles and influencing variables in Saudi education and represents a new contribution for Saudi researchers and practitioners in education.

The researcher developed a maturity assessment model that provides a guideline for TQM change management practitioners to systematically measure the level of implementation of hard and soft factors at certain stages of TQM maturity.

11.2.2 **TQM research community and change practitioners**

The CMAF model fills the gap in published research between the TQM concepts and theories and their practical implementation, especially in education but can also be applied to other sectors and industries. They would be most interested in the findings of:

Chapter Two: The implication of the local cultural context exerts a significant impact upon the desired integration of hard and soft critical success factors of TQM implementation;

Chapter Three: The present change frameworks do not provide a practical stepped approach to implementing the knowledge, skills and capacity to improve the organisations levels of TQM implementation readiness and transformation of workforce behaviour and practices

Chapter Four: The research identified that there are several major obstacles that significantly prevent or hinder the successful implementation of TQM and its associated benefits and that there is an interdependency between obstacles and CSFs that needs to be recognised for successful TQM change implementation.

Chapter Five: Overcome the limitations of a lack of a clear road prioritised map, workforce benchmarks and major barriers with a systematic graduated and measurable evidenced based approach to developing the TQM capabilities and embedding new behaviours that represent the new culture.

The package of frameworks suggested would provide a system that enables practitioners to measures a baseline of the "perceived reality" of TQM CSF implementation with the "physical reality" of evidence and develop an action plan to progress the implementation.

11.2.3 Education practitioners

This study increases the limited research of TQM in the education sector with an empirical study of TQM Implementation Readiness and suggests ways to adapt a new management philosophy for education from manufacturing. This CMAF Model assists education academics and practitioners by a practical graduated stepped framework with clear starting and stopping points for the level of knowledge, skills and practice in each step to initiate and assess the cross cultural implementation of TQM in schools.

11.3 Research Limitations

The study has a number of limitations:

- The perception survey was limited to the districts of Riyadh, Saudi Arabia.
- The survey included only the girls' secondary schools.
- The survey did not include the perceptions of students or parents or other stakeholders, such as the Higher Education and business communities, that would be affected by the implementation of the TQM process.
- The study interviewed the MOE officials from Central MOE, but could also have included onsite inspectors.
- The Maturity Assessment Framework is presented in theory only.

11.4 Future Work

- Further research is suggested on the practical application of the CMAF involving the Ministry of Education and schools
- This proposed approach could be compared with the approach to implementing TQM in Higher Education.

- Further research could be undertaken to explore how the focus on the roles of top management, involvement and empowerment and stakeholder vary across Tatweer and private Saudi schools and on the impact of these roles on quality initiatives for successful implementation.
- A continuation of this study in the girls' secondary schools to assess whether the perceptions, influencing variables and obstacles have changed.
- It would be interesting to find out whether the perception survey results were similar in other educational organisations in SA such as primary or elementary schools or boys' secondary schools.
- Research on the perceptions of the influencing variables and obstacles in boys' secondary schools.
- Similar research could be performed in other national sectors: health, tourism, etc., to establish the baseline level of the implementation of quality initiatives in these sectors and if possible to suggest improvements.

11.5 Conclusion

The long term success of major change initiatives requires an organisation to be adequately prepared for the TQM implementation. *The TQM path is a series of alternating periods of transition; small but continuous improvements (kaizen) to key processes, followed by large discontinuous improvements to achieve the transformation to reach the desired future state, the vision* (Dervitsiotis, 1998).

Transformational change requires people to change; however people are not machines, they are motivated by their values, belief and assumptions.

Employees' perception of a school's readiness for change is a critical factor in determining whether they resist or facilitate successful change management. The survey baseline highlighted that TQM implementation had not yet developed in the schools under review to a level that involved and engaged Most of the respondents and the influencing variables demonstrated that the traditional culture remained embedded.

The obstacles confirmed that the implementation of the Critical Success Factors required more preparation and investment in the people-related (soft) factors to improve the level

of readiness for TQM Implementation. The study demonstrated how the respondents' perceptions can indicate the TQM Readiness Level using a simulated capability based maturity model.

This model is not technology-led but focuses on developing a framework led by people's capabilities that supports the Ministry by assisting schools to develop and implement the knowledge and skills needed for the TQM action plans to meet the Ministry strategic objectives.

The framework demonstrates how these strategic objectives can be cascaded to encourage the whole workforce to engage with an integrated performance and recognition system that motivates the schools to continuously improve their TQM CSF knowledge and skills and embed the new desired behaviours in their work practices.

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APPENDICES

Appendix A Education in Saudi Arabia

The history of the education system in the Kingdom of Saudi Arabia (KSA) is closely linked to Islam. In the past, education took place mainly in mosques and then in religious schools or educational institutions that taught reading, writing and studying the Holy Quran. There are various types of education in KSA, which are as follows:

1- Traditional education: it takes place in religious schools and seminaries in mosques throughout Saudi Arabia.
2- Government education: this is known as regular education in Mecca and Al Medina Al Monowara. It is in essence traditional education, which has been modernized by including some new subjects in the curriculum. This can be found in certain special modern private schools, mostly in the Eastern and Western Regions of KSA (Saudi Arabia Ministry of Education, 2008).

Originally, public opinion in certain areas in KSA was against opening schools for girls as it was thought that non-religious education was of no use to them and was indeed dangerous (Al-Eisa, 2009). This mindset was manifest in the ratio of boys' to girls' schools at primary level where 22 percent of boys and 2 percent of girls were enrolled in 1960. This changed drastically in a short period, so that most people began to favour girls' being educated. In 1981, 81 percent of boys and 43 percent of girls attended school and in 1989, almost as many girls were enrolled in the public school system as boys (1.2 million girls out of 2.6 million students – 44 percent of the entire school population). It was not compulsory for boys or girls to go to school.

Government policy also acknowledged "*Women's right to obtain suitable education on an equal footing with men in light of Islamic laws*." In effect, by the late 20th century girls had the same educational opportunities as boys at the pre-college level, except that only boys participated in physical education and girls alone studied home economics (Metz, 1992).

In 1989, there were over 14,000 educational institutions in KSA. This included seven universities and eleven teacher-training colleges, alongside vocational and technical

training colleges, institutions catering for special needs and others providing adult literacy classes. The system was growing so fast that as many as 950 new schools for 400,000 new pupils opened in the period 1988-89. The government funded all teaching, books and health services for the pupils, which took up almost 20 per cent of its budget (US$36.3 billion) for human resources in the Fourth Development Plan, 1985-90. In the Fifth Development, 1990-95 a total of US$37.6 billion was allocated for this purpose (Metz, 1992).

A.1 Administration of Education

The education system in KSA is administered in a highly centralized way. The Supreme Council of Education is responsible for the control and supervision of all educational policies. The same curricula, syllabi and textbooks are used throughout the Kingdom. The educational system is administered through nine agencies, four of which are the main government agencies.

Up until 2003, four main bodies were responsible for education: the Ministry of Education, the General Presidency for Girls' Education, the Ministry of Higher Education and the General Organisation of Technical Education and Vocational Training. Other ministries such as the Ministry of Defence (MOD) were responsible for the education of their own staff and/or their children. The Ministry of Education was responsible for approximately 51.4% of all schools and the General Presidency for Girls' Education was responsible for approximately 39%. About 3.4% of the remainder was under the supervision of other government departments and just over 6% were in private hands (Alshumaimeri, 2001).

At the beginning of 2003 the General Presidency for Girls' Education was disbanded and the Ministry of Education took over from it the administration of girls' schools and colleges, the supervision of kindergartens and nursery schools and the sponsorship of literacy programmes for women (Saudi Arabia Ministry of Education, 2011). But this integration does not mean that there is co-education in Saudi Arabia at all levels. There are of course girl students, female teachers, female head teachers, female senior managers etc. (The Shadow Report for CEDAW, 2007). In 2015 the Ministry of higher Education

was merged with the Ministry of Education into a single ministry called the Ministry of Education

A.2 Structure and Organisation of the Education System

The education system in KSA comprises four types: Public education. Private education, Special education and Higher (tertiary) education.

A.2.1 Public Education

Public education has four phases: Pre-school education (Kindergarten), then Elementary Schooling, which begins at six years of age and continues for six years. Boys and girls follow the standard curriculum in separate schools. Intermediate education for twelve to fourteen years old is the equivalent of Grades 7 – 9 in the US education system. Intermediate schools are flexible and can facilitate students enrolling in evening school if they need to combine education with working (Al-Shabi, 2013). Finally the last stage is Secondary Level.

Secondary Level

Education at the secondary level lasts for three years. There are two types of secondary schools, mainstream and courses system schools. Most pupils are aged between 15 and 19 years old. According to Al-Shabi (2013) and the Ministry of Higher Education (2010), secondary level is considered the most important period in the general education ladder because students who successfully complete this stage are eligible to join any higher education institution. In each institution of higher education, graduation is the target of every student.

(A) Mainstream (Regular) Secondary Education

There is a general curriculum for all students in the first year of secondary education; for the last two years girls have chosen a major from the Sciences and Arts sections (Al-Shabi, 2013; UNESCO, 2011).

At the secondary level, each school year has two semesters of twenty weeks each, which includes an examination period of two weeks. Classes are 45 minutes long and weekly schedules range between 26 and 33 periods according to the school grade and the subjects

studied. Pupils must study a required number of courses and achieve at least 50% in their examinations in each subject in order to earn a Secondary School Certificate.

(B) Flexible secondary schools education (course system)

This has been introduced recently by the government in order to implement modern academic and management systems. Ministerial Council Approval was issued in 2004 regarding the adoption of a new education plan for the secondary (high) school education programme. This new system was experimented with in eight educational departments for boys and girls and was based on a Saudi Ministry of Education circular.

The system strives to promote self-sufficiency, self-learning and exploration, independent thought, reflection and self-development, by providing opportunities of exercising equality and freedom of choice. It offers educational expertise and appropriate programmes underpinned by equal opportunities and access for all children. The course is based on:

- An integrated curriculum;
- Some choice for students regarding the number of learning hours in the classroom and specific curriculum;
- Academic guidance: offering students assistance and guidance in understanding the system and putting together their study programme, implementing it and tackling any challenges that they may encounter;.
- Evaluation: under the disengaged curriculum, a fail grade does not automatically require the year to be retaken. Furthermore grades can be accumulated over 3 years (MOE et al., 2008).
- The students have advisors and the schools operate an open door policy, in contrast to ordinary schools where students cannot leave without permission from their parents (Almannie, 2015).

A.2.2 Private education

Private education in the kingdom is to be considered one of the elements supporting governmental education at all levels. It includes pre-school, elementary and secondary.

levels. In addition, some institutes offering English language programmes (Al-Shabi, 2013).

A.2.3 Special education

Special education goes in parallel with mainstream education. Educational services are provided to the students who have mental, visual and hearing impairments. Special education for boys and for girls is the responsibility of the Ministry of Education (Al-Shabi, 2013).

A.2.4 Higher (Tertiary) Education

Post-secondary education in Saudi Arabia has some features in common with the educational system in the United States, although these have been adapted to the Islamic system, traditions and customs. In 1975, the Ministry of Higher Education was formed from part of the Ministry of Education. This ministry has responsibility for higher education in Saudi Arabia.

The Higher Education Council has the ultimate responsibility for post-secondary education and is specifically in charge of supervising and coordinating institutions. The only exception to this is military education. The Council is in charge of directing university education according to official policy, overseeing the development of university education in all sectors, coordination between universities, particularly in relation to science departments and degrees, facilitating research, formulating rules and regulations for higher education institutions and other aspects of higher education. Masters' degrees and doctorates are also available in certain fields of study at some universities and colleges (Ministry of Higher Education Saudi Arabia, 2006).

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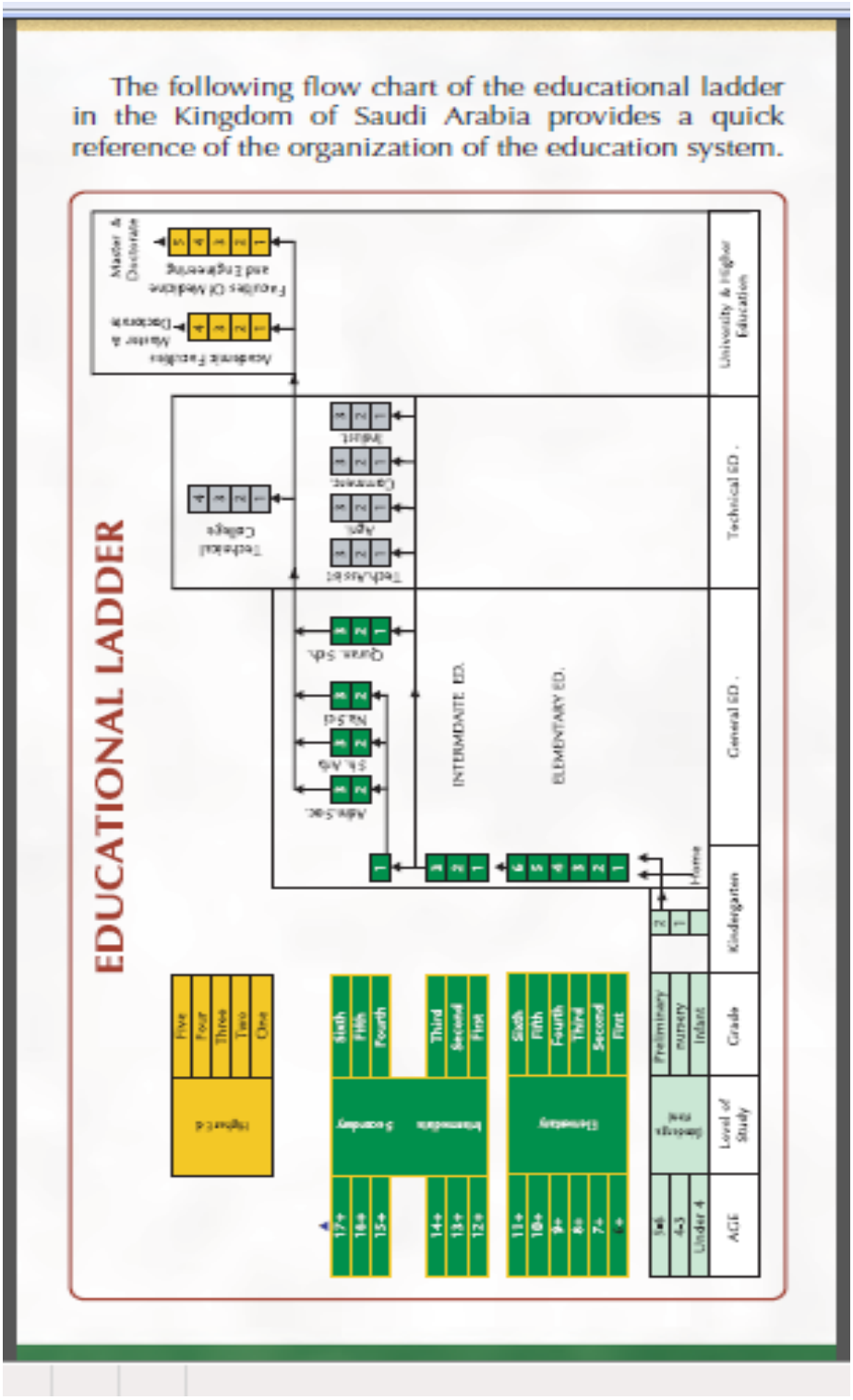

Figure 11-1: The Educational Ladder in Saudi Arabia (UNESCO, 2011).

Teaching Staff and Training

At the end of the 1980s, approximately 40 percent of teachers were from abroad. Most of these were from other Arab-speaking countries and almost half of them were from Egypt. There has since been a rise in the number of Saudi teachers at all levels of education, particularly at the elementary level. This was a result of the growth in the number of teacher training colleges during the 1970s and the greater material rewards for educationalists, which were laid down in a royal decree in 1982. However it was still difficult for teacher training colleges to enrol pupils, particularly male ones; male enrolment decreased somewhat, while female enrolment almost tripled. By 1984, approximately 12,000 female pupils were studying at the seven colleges of education for women in Riyadh, Jeddah, Mecca, Medina, Abha, Buraydah and Tabuk. At the beginning of the 1990s, the training institutions for secondary teachers were closed down and the students were enrolled in junior college. This enabled graduates to move on to a bachelor's degree, thus making teaching a more attractive career path (Metz, 1992).

The Saudi universities are contributing to training teachers and properly preparing them for their work. The university faculties of education are tasked with preparing and graduating qualified staff and upgrading the educational and professional standards of already trained general education teachers, principals and administrators by offering a range of training courses together with the Ministry of Education.

The universities offer specialised teacher training courses. Thus, they run courses for elementary and intermediate principals as well as courses for teachers who do not have suitable qualifications. Teachers at all levels must have at least a 4-year Bachelor's degree. The faculties of education at Saudi universities and colleges offer a broad curriculum, which covers education theory and methods; they have separate departments for physics, biology, mathematics, English and Arabic language and Islamic studies (UNESCO, 2011).

A.3 Tangible Efforts to Promote Gender Equality

1-The Saudi government has put a great deal into promoting gender equality as laid down in the Third Millennium Development Goals and in ensuring that girls have equal access

to basic education. Saudi Arabia signed and ratified the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) on 7th September 2000, albeit with some reservations. The term "*discrimination against women'* refers to *'any distinction, exclusion, or restriction made on the basis of sex.*" The Ministry of Education and the Ministry of Higher Education are responsible for male as well as female education although the sexes are segregated, in keeping with Shari'a law.

2- Nationwide there has been a great deal of progress towards gender equality among students. Statistically a rise in the number of female students at all levels can be seen over a period of 30 years with 272,054 female students in 1974-75 rising to 2,121,893 in 2004-05. The percentage of female pupils rose from 33 percent in 1974-75 to 48 percent in 2004-05 (AlMunajjed, 2009).

3-The government has shown its great interest in supporting girls' education by offering financial assistance to female students in all areas and at all stages of their education. In 1999-2000 boys' and girls' education received equal amounts of the budget, but only a few years later the percentage allocated to girls' education was greater than the percentage for boys' education.

A.4 The need for change

The Saudi economy has been growing by an average rate of two to zero percent (Baki, 2004) and needs to grow much faster to accommodate the high levels of unemployment.

During the last 40 years, the government has been able to develop the educational infrastructure so that there has been a rise in enrolment in schools and universities and a drop in illiteracy rates.

However, the skills of the students leaving the education system do not meet the occupational needs of the current market or the future economy (Almannie, 2015), which rely more on research and development and an increase in private sector opportunities.

Higher education urgently needs to fill these gaps. Saudi industries are desperately seeking engineers, technicians and business graduates, but Saudis can rarely qualify for these posts since their degrees tend to be in philosophy or subjects related to work in the

public sector. Additionally, 58% of University graduates are women, but gender segregation restricts them to teaching or clerical posts, thereby worsening the productivity crisis. As a result 7 million foreign workers fill positions in a population of 16 million (Baki, 2004).

The government has introduced a "Saudization" strategy to prepare and develop Saudi nationals to work in all sectors of the economy. However, the Saudi workforce has a productivity crisis and lacks the ability to respond to technological advancements and the rapidly changing demand for high quality goods, a situation made worse by the high levels of estimated unemployment of men and women. The World Bank states that the per capita GDP growth of Saudi Arabia could have been 0.7 percent higher had there been fewer barriers to the employment of women. Although government has made progress in creating jobs for women, female participation in the labour market is still very low and not improve without more female education (Baki, 2004).

Higher education relies on reforms in secondary schools to supply the human resources for the economy. Two-thirds of the population is under 30 (Al-Sadaawi, 2010). So education needs to ensure that the next generation of young people is composed of skilled, knowledge-based nationals, people who are needed to achieve the country's socioeconomic goals (Maroun et al., 2008). Hence, the secondary schools have become the most significant preparatory foundation for KSA's future society. (Almannie, 2015).

Substantial investments, SR11.8 billion (US$3.1 billion) has also been invested in a recent public education initiative, the King Abdullah project, which implement four programmes over the next five years to improve the quality of education (SUSRIS, 2016). Launched in 2007, this is a landmark Tatweer (reform) project targeting 900 schools in Saudi Arabia with a view to introducing technology and spreading reforms in teaching, the curriculum and the building of new schools (Meemar, 2014).

The building schools programme therefore was intended to alleviate the pressure in the classrooms and introduce new technology to promote a more conducive classroom environment and encourage interactive learning (MOE, MOH and Vocational, 2008).

Investment, however, needs to be more tightly integrated, because training the teachers to use new skills did not deliver the desired results. Teachers still complained that full classrooms combined with the work pressures of the new curriculum discouraged them from putting these skills into practice. Additionally, teachers cited the lack of educational aids and a lack of clear standards and outcomes. Teachers argued that they were inadequately prepared and had no incentive to make the changes.

The Ministry of Education has had to consider and implement major change management strategies, including TQM, to implement the new systems and programme that achieve the ambitions of Vision 2030 but it must be admitted that their results so far have not been successful. Whilst the scale of the strategic programmes is very ambitious, it has placed most emphasis on the harder, measurable aspects, such as infrastructure, skills and the curriculum. Unless, however, this also pays due attention to the softer, more subjective aspects which influence the values, beliefs and assumptions of the stakeholders involved, the desired culture that encourages innovation, flexibility and continuous improvement not be built.

A.5 Summary

The education system in Saudi Arabia has experienced and continues to undergo significant organisational reforms that have streamlined the entire general education administration into the Ministry of Education. Alongside the organisational streamlining, there has been considerable cultural reform inspired by the ambitions of Vision 2030.

Key to the Vision 2030 is to achieve an internationally competitive knowledge based economy where all male and female citizens have access to free education without any discrimination and an education system which produces individuals with creativity, flexibility and the relevant skills to contribute to building an innovative future society.

The Ministry of Education therefore has had to consider and implement large change management strategies to implement new systems and programmes to achieve these ambitions. The MOE selected TQM as the strategic means to transform the way that the education system engages with students.

Appendix B Background to Total Quality Management

B.1 The development of quality

When the literature on TQM is examined, it can be seen that this management approach was not a sudden development, nor a rapid response to a crisis.

Among the claims made for TQM are that all members of TQM organisations strive to manage the improvement of the organisation through the ongoing participation of all employees in problem solving and decision making at all levels of the hierarchy. Advocates of TQM argue for its stakeholder orientation. However, to understand TQM theory we should look first at the initial idea of 'quality'.

While there is no universal agreement on a definition of quality, there is general accord that it is an important concept for stakeholder satisfaction and retaining customer loyalty; it also reduces the cost of products or services and avoids the need to rework processes.

The concepts of quality development have shifted over time and have passed through four different stages. The first stage, *inspection* (I), can be said to have begun with industrialisation and mass production. The second stage, *quality control* (QC), evolved with industry in wartime and responded to the systematic development of the manufacturing process. The third stage, *quality assurance* (QA), took into account the complete development and manufacturing process of a product as an element which impacts on quality. The fourth stage, *total quality management* (TQM), treats quality in a holistic and strategic way. Here all the members of an organisation are held responsible for quality and corporate management plays a central role (Tervonen, Pahkala and Haapasalo, 2009). The figure below illustrates the entire development process.

Figure Apx B-1: The Development Stages of TQM
(Mangelsdorf, 1999)

B.1.1 Inspection

This describes the process of measuring, examining, testing or gauging one or more features of products or services, which are then compared with specific requirements to verify conformity (BS 4778, 1987).

Frederick Taylor is considered to have been the first to try new approaches to enhance the performance of unskilled workers in industrial organisations. He introduced a series of concepts which are the basis of present-day ideas of 'quality'. In *The Principles of Scientific Management* (1911) Taylor sets out principles such as assigning particular tasks to workers, giving significant rewards for success and applying knowledge in the work environment. Nevertheless he did not link planning with work improvement, meaning that there would be a specific department of inspectors who monitored output quality. However, TQM originated in inspection and, according to Seymour (1992), the 1930s inspection process sought to ensure production uniformity. Aguayo (1990), however, suggests that if inspection is correctly done, it identify defects and stop them from making their way to the customer; he considers that inspection is vastly overused and frequently misused.

At best, it is a limited and imperfect method of management since it does not ensure quality and does little to make itself suitable for managing complex organisations. This thought underlies the concept of quality control.

B.1.2 Quality Control (QC)

This term describes the operational techniques and activities which are used to ensure that products meet the requirements for quality (BS 4778, 1987).

In 1924 Shewhart produced a statistical chart which allowed product variables to be controlled. This introduced statistical quality control (SQC). He went on to develop it further in his book from 1931, *Economic Control of quality of Manufactured Products.* This work is considered to have provided the first scientific basis for the quality discipline (Yong and Wilkinson, 2002). Shewhart describes a series of techniques which eliminate sources of variability in industrial processes, allowing them to become more predictable and more readily controlled, resulting in noticeable reductions in the levels of waste and delay (Sallis, 1993).

Sallis (1993) considers that detecting and eliminating sub-standard components and final products form the core of quality control. He explains that quality control is normally conducted by professionals known as quality controllers. Quality control can be said to consist of a series of operational techniques and activities that are based on a comparison of actual performance with predefined quality performance standards and then taking the appropriate action in response to the differences. This is a further refinement of inspection, albeit with some limitations, because quality controllers draw on statistical techniques to obtain quality products and services.

Although quality specialists were becoming more influential in the organisation, statistical techniques impacted purely on shop-floor employees and there was no direct connection with management until the advent of quality assurance.

B.1.3 Quality Assurance (QA)

Quality assurance is seen as the third step in the development of TQM. Here finding and solving a problem after non-conformance is not held to be an efficient way of addressing the cause of the problem. In quality assurance it is possible to attain continuous improvement only by aiming organisational efforts at planning and preventing problems at source. This principle is the basis of the third stage in the development of quality management, quality assurance (Dale, 2003). It differs from quality control. The tools of

the QA professional have a greater range than statistical methods have in the quality control (QC) stage; the function of QA was considered to be primarily to serve those who are not directly involved in the operations, those who 'need to know – to be informed – as to the state of affairs and hopefully, to be assured that all is well' (Juran, 1995). Sallis (1993) describes quality assurance as being evident before and during the event process. QA is very much concerned with the production process as a whole and with the ways that all functional groups contribute to avoid quality failure.

In Britain the general acceptance of the need 'to build a structure of quality assurance bodies with mutual acceptance of approvals to avoid multiple assessments' (Warner, 1977) resulted ultimately in British industries adopting a new British standard in 1979, the BS 5750. The BS5750 required organisations to set up, document and maintain an effective quality system that would show all customers their commitment to quality and their ability to meet quality needs. The BS 5750 has since been replaced by the International Organisation of Standardisation's ISO 9000 standards for quality control systems. Today these are generally recognised by companies throughout the world and guarantee the quality practices of organisations. When companies are certified to an accepted quality standard such as the ISO 9001 or ISO 9002, customers can be assured that they abide by the standards of a comprehensive quality control system (Juran, 1995).

Sallis (1993) describes the primary concern of QA as being to stop faults from cropping up at all – the concept of getting it "Right First Time" should be built into the process to make sure that products/services meet the desired specifications. Sallis holds that if there is a system in place which describes precisely how production or a service should be conducted and the standards which should be maintained, this guarantee that the goods or services are of the required quality. This system is known as the quality assurance system. Hence QA can be considered a managerial process which is relevant to all manufacturing processes and strives to attain quality by avoiding faults. Nevertheless there are some limitations to quality assurance, for it describes how processes should run in the present context, but can only improve or enhance to a limited extent. There still needs to be a comparison and determination whether what is actually being done – the practice – complies with the desired processes. There has been a continued focus on

quality in business and commerce and in public services, for example, health and education.

The QA era revealed the significance of the preventative approach to quality and the need for a quality philosophy going further than production functions. In the preventative approach it is not enough to merely use a set of quality management tools and techniques: a different management style and way of thinking must be introduced in order to develop a new operating philosophy and approach. Teamwork across various functions then allow the root cause of problems to be identified and eliminated. These insights paved the way for TQM (Dale, 2003).

B.1.4 Total Quality Management

In the late 1940s Japan made remarkable progress in improving the quality of its products. Before the Second World War it had had a reputation for producing shoddy consumer goods; after the war it greatly improved the quality of its goods and now is one of the leading economies globally, producing top quality goods. Cole (1998, p. 45) observes that '*the new quality paradigm which was developed in Japan between 1955 and 1980 emerged from the sense of crisis following the devastation of World War II'*. Because their products had the reputation of being shoddy, Japanese organisations looked into new ways of thinking about quality. They embraced ideas from foreign companies and lecturers, among them Deming and Juran, American experts on quality, and implemented unparalleled strategies aimed at bringing about a quality revolution. These strategies characterise the new 'Total quality' approach which does not focus on product inspection but rather concentrates on improving all organisational processes. This allowed Japan to manufacture exports of a higher quality at a lower cost (Oakland, 2003).

The quality movement in Japan had made tremendous progress by the 1960s and Japanese products were no longer perceived as being cheap and shoddy. Japan was now in a position to manufacture exports of high quality at a low price (Yong and Wilkinson, 2002) Japan, America and Europe sponsored the first international conference on quality control, which took place in Tokyo in 1969. Feigenbaum used the term 'total quality' in a paper which he gave at the conference. The term was used in reference to broader issues such as organisation, planning and management responsibility. In another paper, Ishikawa

showed how ‘total quality’ control in Japan meant something different: ‘companywide quality control’. He explained that in his view all employees from the workers up to top management, must study and be involved in quality control.

In the West, the quality revolution was slower and not in force until the beginning of the 1980s. When they saw Japan’s success from the use of quality concepts, Western companies began to implement their own quality initiatives. By the close of the 1970s, national legislators, administrators and the media in America had become concerned about the quality crisis. This caused the chief executive officers of various important American corporations to volunteer their personal leadership in the quality movement, causing TQM to expand (Dale, 1994). Since the 1980s there have been many debates and discussions on TQM all over the world. Managers have used TQM to produce quality products and services in an increasingly competitive climate, making TQM a popular approach in business and manufacturing, one which was adapted in the 1990s for use in education.

Various principles of quality management, for example, continuous improvement, customer focus, honesty, sincerity and care in all aspects of the business, including dealings with customers and suppliers, are an intrinsic part of TQM. Although the individual systems, procedures and requirements are no stronger than those at the quality assurance level, they now involve each individual, each activity and each function in the organisation. TQM demands a broader outlook, wider range of skills and more generative activities than quality assurance did. Tools and techniques are used in a more sophisticated way and there is a greater emphasis on people. The process also reaches further than the organisation and touches partnerships with suppliers and customers. Internal and external customers are the focus of the business activities (Dale, 2003).

To summarise, TQM can be said to be the result of the continuous refinement and development of concepts and practices with the goal of developing quality. Its origins lie in basic inspection procedures which then mutated into quality control and quality assurance processes. TQM developed from these and became still more advanced, putting quality management principles into effect at all organisational levels.

The Definition of TQM

From 1950 onwards, for about 40 years, authorities such as Deming, Juran and Crosby taught their ideas on quality without using the term 'total'. Feigenbaum introduced the concept of TQM in 1961, although he referred to it as total quality control (TQC). The European Foundation of Quality Management was founded in 1988. This organisation emphasised the significance and the value of TQM in reaching 'total customer satisfaction'. Feigenbaum described TQM as 'total quality control's organisation wide impact'.

It is not easy to define 'Total Quality Management' (TQM). Although it is widely practised, there is no common agreement on the actual meaning of the term (Sahney, Banwet and Karunes, 2004). Various academics give a detailed account of the history of TQM, the ideas of the post-war quality gurus (Deming, Juran and Crosby), the adoption of quality control (QC) principles in Japan and their application to existing models such as the Malcolm Baldrige National Quality Award (MBNQA) and the European Quality Award (EQA); however they do not attempt to define TQM.

Virtually all writers on TQM have their own definition of the term and reject others; the definitions reflect the beliefs, prejudices and business and academic experiences of the writers (Kruger, 2001).

There are several causes for the confusion and ambiguity regarding definition of this term. First, the concept of TQM is constantly changing with the development of new ideas and methods. Second, different organisations are at different stages of progress towards TQM. Third, different forms of TQM may be suitable for different organisations (AlSabahi, 1999). Finally, TQM is referred to by several different names and terms, including total quality (TQ), total quality control (TQC), quality improvement (QI) and many others (Seymour, 1992). Still, it is widely agreed that TQM is made up of the following concepts:

Total: This reflects the fact that all the people who are involved in the production or the service process are integrated or participate in the overall process. The reference to 'total' in TQM emphasises also continuous development which includes everybody and everything in the organisation.

Quality: With reference to TQM, quality can be described as 'meeting the wishes and expectations of customers at an ideal economic level and in the most suitable manner" or as 'a dynamic state that is meeting or exceeding customers' requirements, needs, expectations and desires'. In TQM the customers should be the beginning and the end of the quality improvement process.

Management: In a broader sense of the word, 'management' can be said to be included in the previous two concepts. The desired quality almost certainly cannot be attained without good management and leadership. In keeping with the 'total' part of TQM, management includes everyone, because, regardless of role, position or status, everyone fulfils his own responsibilities. According to TQM, management's job is leadership rather than supervision. The emphasis should not be on outcomes (management by numbers, standards of work, meeting specifications, appraising performance, zero defects), but rather on leadership (Töremen, Karakus and Yasan, 2009).

Cole, Bacdayan and White (1993) describe TQM as a management system that gives greater priority to satisfying human resources than to generating short term profits, in the belief that this create long term, stable profits. Their emphasis is on human resources which they describe as the most important organisational priority. Crosby (1979) considers TQM to be a management discipline which aims to prevent problems by introducing suitable attitudes and controls.

Many authorities agree with Crosby that it is not feasible to implement the concept in practice, particularly in an educational setting. However, Al Badri (2005) considers TQM to be a management style which is grounded in providing what the customer would describe as a quality service. Here the emphasis is on customer satisfaction which in an improved service would be considered a basic measure of quality.

Other attempts have been made to define TQM. Oakland (2003) for example describes TQM as a comprehensive approach to achieving greater competitiveness, effectiveness and flexibility in a firm by planning and understanding all its activities and by including everyone at every level. Ghobadian et al. (1998) define TQM as a structured attempt to re-focus the organisation's behaviour, planning and practices on a culture which is geared towards customers and problem-solving and is fear-free. Other authorities describe TQM

as a set of concepts which work together to create an organisational culture which is dedicated to continually improving skills, processes and service quality (Kreitner, 1995).

Thapa (2011) observes that in TQM customers should be satisfied the first time and every time. Its approach to the management of an organisation concentrates on quality based on the participation of all its members as they strive for long-term success. This consists of providing customer satisfaction and benefits to all members of the organisation and to society. The use of the term 'management' in TQM shows that it is a management approach and implies more than quality control or quality assurance alone. It should be noted that all members of the organisation are involved in TQM, not only the project leader. It can be described as very people-oriented, with many implications for studying and applying institutional behaviour.

It is not enough to merely define TQM; it is also necessary to grasp its principles, tools and techniques, as formulated by Deming, Juran and Crosby, the TQM 'gurus'. The sections below outline the philosophies and methods of these gurus and precede a review of TQM tools and principles.

B.2 The Gurus of TQM

A comparatively small number of American and Japanese experts on quality had a very significant impact on the early development of complex quality management systems (Kruger, 2001). Oakland (1989) observes that even though it may appear that all these 'gurus' offer different answers regarding quality management, in fact the solutions are all concerned with basic principles of total quality. 'They are all talking the same "language" but they use different dialects'.

The focus of the TQM gurus has been on the relevance of theory in effective management. Theory allows situations to be anticipated and a key part of management is anticipation. This means effective management must always understand the theory. In order for the theory of TQM to be properly understood, one must understand the background of the founders of TQM along with their philosophies and methods.

The gurus have contributed to the thinking and practice of the quality improvement movement in two ways: some have emphasised the philosophical elements of quality

improvement while others have focused on the tools to be used. Given their contribution to the TQM literature and their work in developing TQM principles and methods, the most influential gurus of the quality management movement are commonly held to be Crosby, Deming, Feigenbaum, Ishikawa and Juran (Martinez-Lorente, Dewhurst and Dale, 1998).

B.2.1 Edwards Deming

The most famous of the early pioneers was W. Edwards Deming who popularised quality control in Japan at the beginning of the 1950s. He has been described as the founding father of TQM and the well-known Deming Prize for quality was established in his honour. His best known contribution was the development of a statistical system of quality control; however his work is not limited to these techniques (Omachonu and Ross, 2004).

Deming, who held a doctorate in physics from Yale, was a statistician employed in the US Government's Department of Agriculture and the Bureau of Census (Kruger, 2001). In the early 1950s at his conference course on quality control he inspired the Union of Japanese Scientists and Engineers to adopt with enthusiasm the concept of quality (Bergman and Klefsjö, 1994).

Deming's philosophy had its roots in statistics. Following his mentor, the statistician Walter Shewhart, Deming advocated that management should focus on the causes of variability in manufacturing processes (Beckford, 2002). The following four points contain the essence of Deming's philosophy:

1. The extended process: Deming held that the organisation's process expands to embrace suppliers, customers, investors and the community (Gitlow and Gitlow, 1987). This is linked to the concept of internal and external customer or stakeholder satisfaction. For an organisation to provide quality services, the stakeholders and their needs must be clearly identified. Taking an educational organisation as an example, the needs of the students, the parent, the market and the staff members must be catered for and if possible provided, to an outstanding level.

2. Continuous improvement: According to Deming, the quality philosophy can be implemented only by means of constant improvement to the extended process (Gitlow and Gitlow, 1987). This doctrine when applied to the education sector means that new methods and new technologies must be introduced and continuous improvement is essential so as to keep pace with other changes and still achieve quality.

3. Common and special variation: Deming claimed that problems of quality are caused by common factors and special factors. Common variations are due to the operation of the actual system, for which management is responsible. Special variations are connected to specific operators and machines and must be dealt with on an individual basis (Gitlow and Gitlow, 1987).

4. Management and worker responsibilities: Deming's philosophy embodies a radical change in the way that organisations are perceived by the people who manage them and who work in them (Gitlow and Gitlow, 1987). Managers must no longer blame each other, the workers, the suppliers or the customers. Management and workers alike must show total commitment to any change and have a fresh sense of purpose.

Bank (2000) identifies four main barriers to the implementation of Deming's precepts. These obstacles are the lack of constancy (or the mobility) of management, preoccupation with short-term profits, the many forms of performance appraisal and management's sole reliance on visible measures of success.

Deming coined the phrase 'lack of constancy' to denote the high level of changeability in management circles; it has been identified by other writers also, who see management flitting from one theory to another with great alacrity. The valid features of each management concept become invalid because of their piecemeal application, due to the frequent shifts from one idea to another. Lack of management constancy is manifested when managers do not make the cultural or organisational changes which are needed for new ideas to thrive, but instead embrace new ideas superficially (Bank, 2000).

The use of statistical tools and a fundamental change in corporate culture are both intrinsic elements of Deming's methods and essential for his philosophy to be successfully implemented (Kruger, 2001; Omachonu and Ross, 2004).

Deming considered management at the individual and company level to be central and held that management could be held responsible for 94% of the problems with quality. His fourteen-point plan, otherwise known as the fourteen principles (Deming, 1986) is a complete philosophy of management which is relevant to all organisations, large or small, public or private, in the manufacturing or service sector:

1- Create constancy of purpose, aiming for improvement of product and service;
2- Adopt the new philosophy. In our new economic age, management must identify its responsibilities and assume leadership for change;
3- By building quality into the product initially, mass inspection no longer be necessary;
4- No longer award business on the basis of the price tag alone;
5- Continually and forever improve the production and service system;
6- Introduce modern methods of on-the-job training;
7- Introduce modern methods of supervision;
8- Drive out fear;
9- Break down barriers between departments;
10- Get rid of numerical goals for the workforce;
11- Get rid of work standards and numerical quotas;
12- Get rid of barriers that burden the hourly worker;
13- Introduce a robust programme of education and training;
14- Create a structure in top management that vigorously promote the above thirteen points on a daily basis.

The fourteen points or principles which Deming lists are basically simple and are founded on a combination of statistical and human, or cultural, elements. He also popularised the so-called *Plan, Do, Check, Act (PDCA) cycle,* a systematic approach to problem solving. The PDCA cycle is also referred to as the Deming cycle, even though it was developed by Dr Shewhart, Deming's colleague (Sun, 2000).

B.2.2 Joseph M. Juran

Joseph Juran started work in 1924 as an engineer and went on to work as an executive, a civil servant, an academic, an arbitrator, a director and a management consultant. His sound professional experience was the basis for his first work in the field of quality, *The*

Quality Control Handbook; this led to his internationally prominent place in the field (Kruger, 2001; Beckford, 2002).

According to Juran, quality in quality management means fitness for use (Flood, 1993). Juran was the first to propose the quality trilogy – quality planning, quality control and quality improvement. In good quality management, quality actions are planned, improved and controlled. Juran's approach implied that quality control must be an integral part of the management function; this introduced a new and broader understanding of quality (Kruger, 2001). Juran's quality trilogy is shown in the table below:

Table Apx B-1: Quality trilogy
(Juran, 1993)

Quality planning	**Quality control**	**Quality improvement**
Identify the customer	Choose control subjects	Prove the need for improvement
Determine the customers' need	Choose units of measurement	Identify specific projects
Develop products features	Establish measurement	Organize for diagnosis
Establish quality goals	Establish standards for performance	Provide remedies
Develop a process	Measure actual performance	Prove that the remedies are effective under operating conditions
Prove process capability	Interpret the difference (actual vs standard	Provide for control to hold gains
	Take action on the difference	

Juran's quality trilogy and his ideas about implementation brought with it a new understanding of customers (both internal and external); but he did not understand the significance of the interaction between the people in the organisation. Beckford (2002) writes that Juran seems to assume that if the separate parts of the organisation are improved, the whole also be improved.

Juran's philosophy as set out in the above table is implemented in three main stages. First, a quality culture is established in the organisation. Next, goals for quality improvement are agreed on. Finally, quality is implemented in the organisation.

Like Deming, Juran considers that management is responsible for quality since it controls 80% of all problems (Flood, 1993).

According to James (1996), Juran's emphasis was on quality improvement. He considered that the objective was to improve performance to levels which had not yet been reached. To accomplish this objective, he proposed that companies should achieve a series of breakthroughs in attitude, organisation, knowledge, culture patterns and results. He describes six steps to problem solving and analyses quality improvement to show its components: identifying the project; establishing the project; diagnosing the cause of the problem; remedying the cause; holding the gains; and replicating and nominating.

Juran's philosophy can be summed up in five key tenets (Beckford, 2002):

- Management holds the greatest responsibility for quality;

- Only planning can improve quality;

- Plans and objectives have to be specific and measurable;

- Training is necessary and begins at the top;

- A three-step process of planning, control and action is necessary.

Juran differed from Deming in that he did not advocate introducing any major cultural changes to the organisation but suggested working with the current system to improve quality. Juran's programmes aimed to run as little risk of rejection as possible by fitting into the existing business planning of an organisation. He believed that employees at different levels in an organisation have their own 'language', whereas Deming considered that statistics should be the common language (Flood, 1993; Evans and Lindsay, 2002).

B.2.3 Philip B. Crosby

Philip Crosby graduated from Western Reserve; his professional background was in quality management. On completing his military service, he worked in quality control in manufacturing, progressing from line inspector to quality director and finally becoming corporate vice-president of ITT. After the success of his first book, which was based on

his years of practical experience, he founded a consultancy, Philip Crosby Associates Incorporated and the Quality College in Florida (Beckford, 2002).

Crosby is best-known for the concepts of 'quality is free' and 'zero defects'. The basis of his quality improvement process is his five absolutes of quality, which are discussed below. Crosby's first concept is his definition of quality. This says that requirements must be clearly expressed in such a way that there can be no misunderstandings and that measurements must constantly be taken to check conformity to requirements.

The second assumption is that quality can be measured by the cost of quality. Crosby considers that the cost of quality is measurable and is equivalent to the price of non-conformance – the price of not doing things right.

The third important assumption of Crosby is the economics of quality – it is always cheaper to Do It Right the First Time (DIRFT) (Crosby, 1979). An educational organisation which focuses on inspection may be successful to some extent, but some day it may fail. However, when the expectation of quality is an intrinsic part of an educational organisation (in its administration, processes, evaluation and so on) and there is no tolerance of failure or error, there be success.

Crosby's fourth assumption is that there is no such thing as a quality problem. He considers that quality problems are the result of poor management (Crosby, 1979). Because products are the result of the management process, a quality product be the final outcome when quality has been built in to the process. It can be assumed that proper management result in a quality outcome from workers. Thus in an educational organisation, the policies, rules and processes are formulated at the administrative level and the staff simply put them into practice. When quality is built into the system at the administrative level, it can be assumed that the outcome be as desired.

Finally Crosby states that the only performance standard should be 'zero defects' (Crosby, 1979). He believes in prevention rather than cure and considers that the standard to strive for is perfection, which can be achieved by means of planning, process and continuous improvement.

Like Deming, Crosby also formulated fourteen principles. His set aimed at continuous quality improvement, which he promoted as the basis of a total quality culture (Flood, 1993). His action programme had fourteen simple steps (Crosby, 1979). Dale (2003) sums them up as follows:

1. Management commitment: management should recognise that it needs to have a personal commitment to participating in a quality improvement programme;

2. Quality improvement teams: these teams should be made up of representatives from each department;

3. Quality measurement: the standard of quality throughout the entire company should be determined;

4. Cost of quality evaluation: the cost of quality should be determined so as to find where a company might profit from taking corrective action;

5. Quality awareness: employees should be informed of the cost of non-quality by means of training and communication;

6. Corrective action: problems should be exposed so that they are visible to all and can be resolved openly;

7. Establish an ad hoc committee for a zero defects programme: after a year, a 'zero defects' day demonstrate the management's commitment to the concept of 'zero defects' and be a reminder of the idea that everyone should do things right the first time;

8. Supervisor training; before the zero defects programme is implemented, all levels of management should be formally briefed on it;

9. Zero defect day: zero defects should be established as the performance standard of the company on one day a year so that it gets sufficient weight and have a longer-lasting impact;

10. Goal-setting; meetings between supervisors and employees should take place and encourage people to relate their individual activities to meeting goals and accomplishing specific tasks as a team;

11. Removal of causes of task error: individuals should be asked to identify any problems that prevent them from delivering error-free work; the appropriate functional group work on providing an answer to any such problems;

12. Recognition: award programmes should be run which recognise staff members who accomplish their goals or have outstanding achievements. Rewards should not be financial; recognition is the most important;

13. Quality councils: frequent meetings should take place between quality professionals and team chairpersons who communicate and decide on ways to upgrade and develop the quality improvement programme;

14. Do it over again: a new team of representatives should be set up to tackle issues with turnover and changes which occur one year to eighteen months after the implementation of a typical quality improvement programme.

B.2.4 Kaoru Ishikawa

An important influence on the Japanese understanding of quality was Kaoru Ishikawa, who is often referred to as the 'father of quality circles' because of the part he played in launching the quality movement in Japan in the 1960s (Bank, 2000). He developed the concept of quality control circles (QCCs) to help implement the philosophy of participation. Here a small group of volunteers from a unit in an organisation come together in a quality circle. Any member of this group, whether supervisor or worker, can lead the circle; the circle hold meetings regularly to consider how tasks can be carried out effectively and efficiently (Flood, 1993). As Owen (2002) points out, Ishikawa's theories rest on the idea of quality improvement as a continuous process. Ishikawa came up with seven basic quality tools which would help promote this continuous improvement. These are: cause and effect diagrams, flowcharts, Pareto diagrams, check sheets, histograms, scatter diagrams and control charts. Using these tools demands special training.

Evans and Lindsay (2002) sum up the key elements of Ishikawa's quality philosophy as follows:

1. Quality begins and ends with education;
2. The first step towards quality is to recognise customers' requirements;
3. The ideal state in quality control is when inspection is not needed any longer;
4. Remove the root cause, not the symptoms;
5. All workers and divisions are responsible for quality control;
6. The means should not be confused with the objectives;
7. Put quality first and set your sights on long-term profits;
8. Markets are the entrance and exit of quality;
9. Top management should not show anger when subordinates present facts;
10. The solutions of ninety-five percent of a company's problems can found using simple tools for analysis and problem solving;
11. Data without dispersion information (i.e. information on variability) are false data.

B.2.5 Armand V Feigenbaum

Feigenbaum, who has been called the originator of 'total quality control', frequently talked of total quality, which he (1961) defined it as: '*An effective system for integrating the quality development, quality maintenance and quality improvement efforts of the various groups in an organisation, so as to enable production and service at the most economical levels that allow full customer satisfaction*'.

Feigenbaum considered it necessary to manage across the entire company and thought that all management and operational functions should be co-ordinated and controlled to unite the social and technical elements of the organisation. He believed that this would be achieved when due respect was paid to the external satisfaction of consumers and there was a focus on supplies and suppliers (Flood, 1993).

He saw this as a business method and described three steps to quality:
• Quality leadership
• Modern quality technology
• Organisational commitment.

Dale (2003) lists ten benchmarks which Feigenbaum identified as being necessary for competitive success through total quality:

1. Quality is a company-wide process;
2, Quality is what the customers considers it to be;
3. Quality and cost are sums, not a difference;
4. Quality needs both individual effort and teamwork;
5. Quality is a way of managing;
6. Quality and innovation are mutually dependent;
7. Quality is an ethic;
8. Quality needs continuous improvement;
9. Quality is the most cost-effective, least capital-intensive route to productivity;
10. Quality is implemented in a total system which is connected with customers and supplier.

Feigenbaum taught that it is necessary for management to commit itself to building up the actual quality improvement process and that it should ensure that quality improvement becomes habitual, with the complementary objectives of managing quality and costs (Dale, 2003).

Hellsten and Klefsjö (2000) sum up Feigenbaum's contribution as the insights that:
1. Everyone in an organisation, from top management down to unskilled workers, is responsible for quality;
2. The costs of non-quality must be categorised for them to be managed. A quality improvement programme can be used to minimise control costs and costs caused by failure to control.

Deming, Juran, Crosby, Ishikawa and Feigenbaum, the 'big five' of quality, appear to have more in common than points of difference. The differences are more to do with the way in which concepts are used and implemented.

Appendix C Barriers to TQM implementation in education

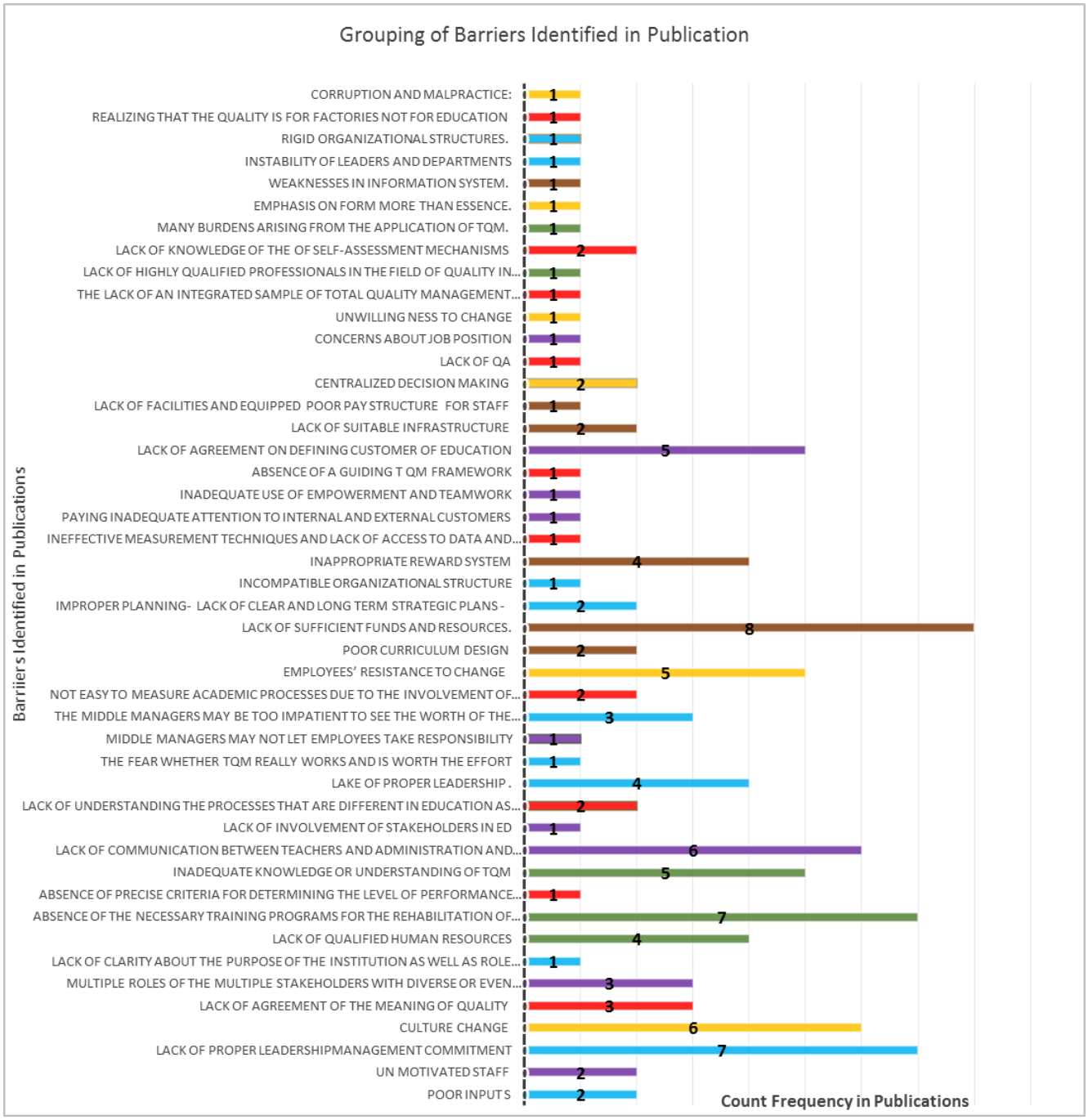

Figure Apx C-1: Barriers to TQM implementation in education

Leadership and management commitment	Lack of engagement	Lack of tools and resources
Inadequate knowledge and understanding and training	Lack of benchmarking	Lack of cultural change

C.1

Table Apx C-1**:** Grouping the Barriers to TQM implementation in education

Themes	Obstacles and Barriers	FRQ	Total
Lack of Leadership & Management Commitment	Lack of leadership and management commitment; instability of leaders and departments; lack of proper leadership	12	23 (21%)
	Fear that the benefits of TQM may not justify the effort; managers too impatient; not enough time to see that it is worth the effort*	4	
	Improper planning; lack of clarity about the institution; ambiguous roles; poor quality and inputs*	5	
	Incompatible and rigid organisational structure	2	
Lack of Engagement & Empowerment	Lack of communication; teachers, administration, staff and students not allowed responsibility*	7	22 (20%)
	Lack of involvement of stakeholders	1	
	Unmotivated staff	2	
	Multiple roles of the many stakeholders with diverse or contradictory demands for education	3	
	Concerns about position	1	
	Inadequate use of empowerment	2	
	Not defining the customers of education; inadequate attention paid to internal and external customers	6	
Lack of Training	Lack of knowledge or understanding of TQM processes	5	18 (16%)
	Absence of the necessary training programmes for rehabilitation of workers	7	
	Lack of qualified professionals in the field of quality in education sector; lack of qualified HR staff	5	
	Burdens arising from the application of TQM	1	
Lack of Tools & Resources	Poor curriculum design	2	18 (16%)
	Lack of sufficient funds and resources	8	
	Inappropriate reward systems	4	
	Weaknesses in information systems	1	
	Lack of suitable infrastructure; lack of facilities and equipment	3	
Lack of Cultural change	Cultural change	6	16 (14%)
	Central decision making	2	
	Emphasis on form rather than substance, which can often lead to or hide corruption and malpractice	1	
	Employees' resistance to change	6	
	Corruption and malpractice	1	
Lack of Benchmarking	Absence of TQM framework; ineffective measurement techniques, self-assessment mechanisms and precise criteria *	5	14 (13%)
	Lack of integrated example of implementation of total quality management in educational institutions	1	
	Difficult to measure academic processes; numerous intangible factors; quality for factories not education.	4	
	Lack of agreement on the meaning of quality	3	
	Lack of QA	1	

Appendix D Search Strategy

The databases used were Scopus, ABI/Inform, IEEE Xplore, Emerald, EBSCO Research Database, Sciencedirect and Google Scholar. Papers were selected using the following criteria: studies published between 2000 and 2014, those written in English and those examining the implementation of TQM in education, using an empirical approach (quantitative or qualitative) or a literature review. The main criterion was a primary focus on TQM in education. Papers that referred to it but did not examine it in depth were excluded.

In addition, the following targeted journals were searched for articles that had not yet been listed in the database indexes: *Quality Assurance in Education*, *Journal of Education for Business*, *The TQM Magazine*, *Journal of Educational Administration*, *TQM Journal*, *Total Quality Management and Business Excellence*, *International Journal of Quality and Reliability Management*, *Assessment & Evaluation in Higher Education* and *Asian Journal of Business Management*. The reference lists of the books and articles that were retrieved were examined to find further applicable articles. Finally, a general search using Google was conducted to obtain information from research studies that had not been published.

The search was carried out using a set of keywords and combinations relevant to the implementation of TQM in education. The following terms were used: definition, models, CSFs, tools, benefits, implementation and barriers. The researcher had a particular interest in sources related to Arabic countries, which were included without regard to the impact factor of the journal.

Retained Papers

This strategy resulted in 132 publications. The abstract of each publication was checked and some were excluded because they were vague and lacked detail. This reduced the number of papers to 98. The content was read and 60 works with a level of detail that was suitable for the research questions were identified.

These papers were summarised and analysed for currency, research basis (theoretical or empirical) and topic. Figure (1) shows the increasing availability of articles on TQM in

education, with a marked increase from 2006 onwards. Figure (2) shows that 25 (42%) of the 60 articles were theoretical, while 35 were empirical (qualitative and quantitative). Figure (3) shows that there is considerable emphasis on two aspects of TQM implementation: critical success factors (CSFs) and definitions. Few articles discussed the benefits, challenges, obstacles, models or frameworks of TQM in education.

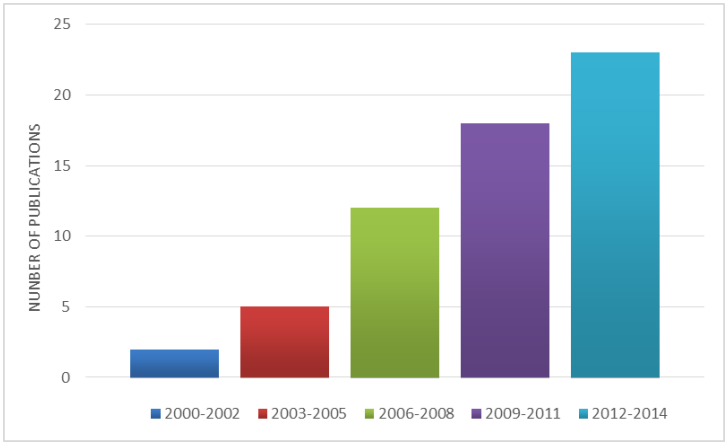

Figure Apx D-1: Paper classification based on publication date

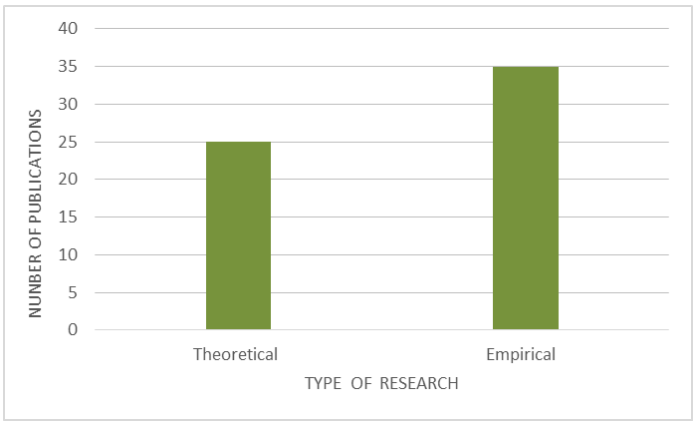

Figure Apx D-2: Paper classification based on type of research

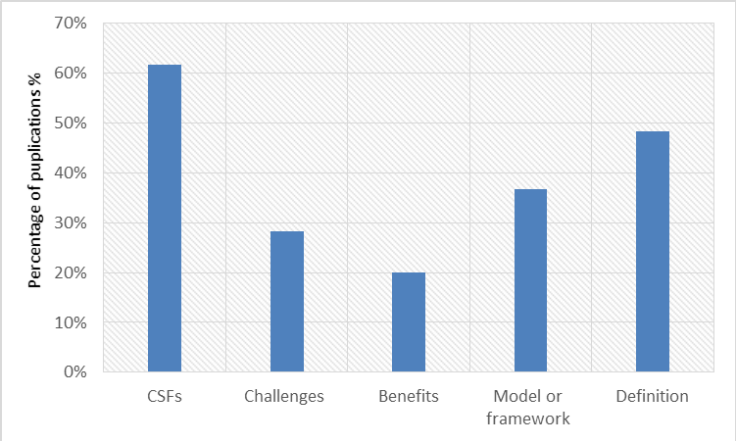

Figure Apx D-3: Content analysis of 60 papers (abridged)

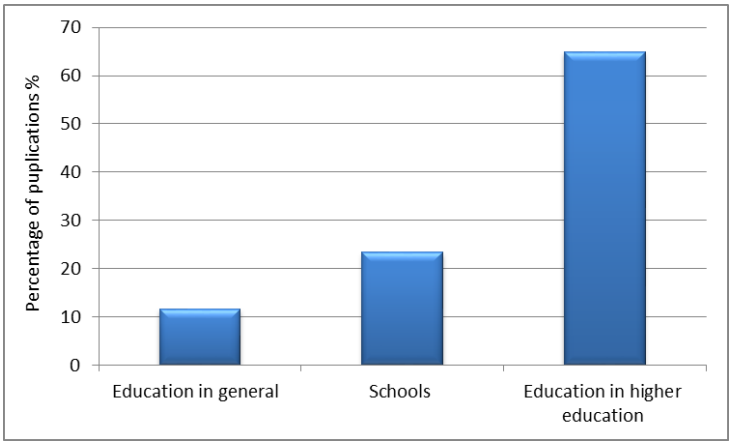

Figure Apx D-4: TQM implementation in educational institutions

Appendix E Preliminary Study

E.1 The Preliminary Study Letter (English)

I am Asma Hassan from Saudi Arabia, a PhD student in the School of Applied Sciences, University of Cranfield and I am doing a preliminary study to determine the levels of awareness and understanding of the meaning of quality and TQM in schools in Riyadh in Saudi Arabia.

As part of the process, the views of headteachers and teachers be sought in a survey. Involvement is voluntary and participants are free to withdraw their consent at any time. Information and data obtained be analysed by Asma Hassan solely for the purpose of this study and not affect any participants in any way. The final written thesis ensure anonymity by not using any actual names or identifying the characteristics of any participants. This letter seeks your agreement to be involved in the pilot PhD research. Please indicate this in the section at the end of this letter.

If you have any concerns about the conduct of this preliminary study, please contact Rebecca McKeown Ethics Officer, School of Engineering, University of Cranfield.

E: r.mckeown@cranfield.ac.uk

T: +44 (0) 1234 758566

Yours sincerely

Asma Hassan

PhD student

Email: asma.hassan @cranfield.ac.uk

E.1.1 The Preliminary Study Letter (Arabic)

: السلام عليكم ورحمة الله وبركاته

أنا باحثة في مرحلة الدكتوراة، اقوم بدراسة استطلاعية لتقييم المشكلات والأمور المرتبطة بالتعليم في مدارس .المملكة العربية السعودية

وتتضمن هذه الدراسة توزيع استبيان للتعرف على آراء بعض المعلمين والمدراء لغرض البحث العلمي في هذه الدراسة فقط ، ولن يتم الإشارة إلى اسماء المشاركين في تعبئة هذا الإستبيان ولا لأسماء المدارس في الرسالة .النهائية

.هذة الرسالة فقط لطلب موافقتكم على المشاركة في هذه الدراسة الإستطلاعية لرسالة الدكتوراة

شاكرة ومقدرة تعاونكم وإسهامكم في هذا البحث

إذا كان لديك أية مخاوف حول إجراء هذه الدراسة التجريبية، يرجى الاتصال ريبيكا ماكيون ، كلية الهندسة، جامعة .كرانفيلد

Email: r.mckeown @ cranfield.ac.uk

T: +44 (0) 1234 758566

تقبلو خالص تحياتي

اسماء بن حسن

Email: asma.hassan @cranfield.ac.uk

E.2 The preliminary Study questionnaire (English)

1- The profile of teacher and headteacher participants:

Location of the school:	North of Riyadh ◯	East of Riyadh ◯
	South of Riyadh ◯	West of Riyadh ◯
The system of study in your secondary school:	Mainstream system ◯	Courses system ◯
Your position in the school:	Teacher ◯	Headteacher ◯
Your subject :		
Years of experience		

2- What are the levels of awareness and understanding among headteachers and teachers of the meaning of quality and TQM in academic institutions in Saudi Arabia?

Survey Questions	Answers		
1- How would you define quality with regard to your job?	High standard of service Teacher-student relationships Keeping the students happy Speed and promptness of service Providing service for the students' needs Other…….		
2- What do you consider to be the Critical Success Factors for TQM implementation?	Good leadership Continuous improvement All school activities and associated resources must be managed in one process and all activities in this process must be activated Teamwork Focus on stakeholders Involvement of staff, students and parents Regular training for staff on the methods and concepts of quality Other …….		
3- Who do you think is responsible for achieving TQM?	Everyone Educational supervisors Teachers Headteachers Top management in the MOE Other ……		
	No	I don't know	Yes
4- Do you know the purpose of TQM in general?			
5- Has your school implemented/planned TQM in the workplace?			
6- Is your supervisor/headteacher an active supporter of TQM in the workplace?			

E.2.1 The preliminary Study’s questionnaire (Arabic)

-1

الحي الذي تقع فه المدرسة:	شمال الرياض ◯ شرق الرياض ◯ جنوب الرياض◯ غرب الرياض ◯
الثانويه هل هي :	نظام مقررات ◯ أو نظام عام ◯
الوظيفه هل انت :	معلمة ◯ أو مديرة ◯
التخصص:	
سنوات الخبره :	

مستوى الوعي بين مديري المدارس والمعلمين لمعنى إدارة الجودة الشاملة في المدارس في المملكة العربية السعودية؟

الأسئـــــــــــــلة	الإجابـــــــــــة		
1- مامفهوم الجودة بالنسبه لطبيعه عملك ؟	مستوى عالي من الخدمة		
	علاقه متينة مع الطلاب والمعلمين		
	المحافظة على رضا الطالب وجعله سعيد دائما		
	سرعة ودقة الخدمة		
	توفير الخدمة التي يحتاجها الطالب فعلا		
	أشياء اخرى تذكر.....		
2- من وجهة نظرك ما هي مبادئ ادارة الجودة الشاملة في التعليم ؟	القيادة الجيدة		
	التحسين والتطوير المستمر		
	جميع الأنشطة المدرسية والموارد المرتبطه بها يجب ان تُدار كعملية واحدة كما أن جميع الأنشطة في هذه العمليه يجب ان تفعل.		
	العمل الجماعي		
	التركيز على المستفيد (الطالب)		
	إشراك الطالب والمعلم واولياء الامورفي ادارة الجودة الشاملة		
	التدريب المنتظم للموظفين على طرق ومفاهيم الجودة		
	أشياء اخرى تذكر.....		
3- في اعتقادك من هو المسئول عن تحقيق الجودة الشاملة في التعليم في المدارس؟	مسئولية الجميع		
	الإشراف التربوي		
	المعلمين		
	المدراء		
	الاداره العليا في الوزارة		
	أشياء اخرى تذكر.....		
ضع اشاره عند الخانة المناسبة	نعم	لا أعلم	لا
4- بشكل عام هل تعلم ماهو الغرض العام من ادارة الجودة الشاملة؟			
5- هل المدرسة التي تعمل فيها تطبق الجودة الشاملة؟ واذا لم تطبق هل تخطط لتطبيقها			
6- هل مديرك يدعم أو يساهم بفعالية تطبيق ادارة الجودة الشاملة في المدرسة؟			

E.3 The Preliminary Study Interview Questions (English)

Interviewee's Name	
Position	
Date	
Duration of interview	
Mode of contact	

What are the problems that inhibit the implementation of TQM in academic institutions in Saudi Arabia from a top management perspective?

Interview Questions
1- What do you think about the level of quality in girls' schools in Saudi Arabia?
2- Do you measure the level of quality in schools? If so, what are the methods of measurement?
3- Are there standards for TQM implementation in schools?
4- What are the benefits from the implementation of TQM in schools in Saudi Arabia?
5- What are the obstacles to achieving TQM in girls' schools in Saudi Arabia?
6- How might these be overcome?
7- What do you consider the most important factors that facilitate successful TQM implementation in schools?
8 - What do you see as the barriers to introducing TQM into the education sector in general?
9- What are your aspirations for education in Saudi Arabia?

E.3.1 . The Preliminary Study Interview (Arabic)

لاسم	
المسمى الوظيفي	
تاريخ المقابله	
مدة المقابلة	
طريقة الاتصال	

ما هي ابرز المشاكل التي تحول دون تنفيذ إدارة الجودة الشاملة في المؤسسات الأكاديمية في المملكة العربية السعودية من وجهة نظر الإدارة العليا؟

أسئلة المقابلة الشخصية
1- ما رأيك في مستوى الجوده في مدارس البنات في المملكه العربية السعودية ؟
2- هل تقاس الجوده في المدارس السعوديه؟ اذا نعم ماهي طرق القياس او كيف تقاس ؟
3- هل هناك معايير لتطبيق الجودة الشامله في المدارس في المملكه العربيه السعودية؟
4- ما هي الفوائد التي تعود علي المدارس من تطبيق الجوده الشامله مما تشجع على اعتماد أو تنفيذ إدارة الجودة الشاملة في المؤسسات الأكاديمية في المملكة العربية السعودية؟
5- ما هي العقبات التي تحول دون تحقيق الجودة الشاملة في قطاع التعليم في المملكة العربية السعودية؟
6- ماهي الاجراءات العمليه التي تم اتخاذها لتجاوز هذه المشاكل.
7- ما هي في نظركم أهم عوامل النجاح التي تسهل تطبيق إدارة الجودة الشاملة بنجاح في المدارس؟
8- باعتقادك ما هي الحواجز التي تحول دون إدخال إدارة الجودة الشاملة في قطاع التعليم بشكل عام؟
9- ماهي طموحك في التعليم في المملكه العربيه السعوديه ؟

Appendix F The Main Study's Questionnaire (English)

After Regards,

I am a PhD candidate currently conducting research in the area of total quality management; a part of its requirement is the enclosed questionnaire.

I am carrying out a study which aims to find out the actual application of TQM in the girls' secondary schools in Riyadh from the perspective of the headteachers and teachers.

Involvement is voluntary and participants are free to withdraw their consent at any time. The information and data obtained be analysed by Asma Hassan solely for the purpose of this study; this not affect any participants in any way. The final written thesis ensure anonymity by not using any actual names or identifying any characteristics of the participants.

Please read carefully the questionnaire and tick (√) the answers in each paragraph of the questionnaire which match your personal opinion. I would very much appreciate your participation and help since the success of this research depends upon your response. Please attempt to answer every question; there are no right or wrong answers. I am seeking your judgement or opinion only.

I look forward to receiving your reply

Yours sincerely

Asma Hassan

Cranfield University, Applied Sciences

MK430AL

Email: asma.hassan @cranfield.ac.uk

Section 1: The profile of the participants:

1- Location of the school:	North of Riyadh ⬭	East of Riyadh ⬭
	South of Riyadh ⬭	West of Riyadh ⬭
2-The system of the study in your secondary school:	Mainstream system ⬭	Courses syste ⬭
3-Your position in the school:	Headteacher ⬭	Teacher ⬭
	Vice-principal ⬭	Administrative ⬭
4-Your subject :		
5-Age:	20-30 ⬭	31-40 ⬭
	41-50 ⬭	Over 51 ⬭
6-Education Level	High school or equivalent ⬭	Diploma ⬭
	Bachelor ⬭	Postgraduate ⬭
7-Years of experience:	Less than 3 years ⬭	3- 6 years ⬭
	7 to 10 years ⬭	More than 10 years ⬭
8- Number of training courses on TQM		
9-Type of school building:	Rented building ⬭	Government building ⬭

To help us classify your responses statistically, may we ask you a few questions about yourself and your school?

Section 2:

The following statements describe elements that constitute effective TQM. In answering this questionnaire you are providing your opinion as to how effectively your school implements each of these elements. A response, therefore, of strongly disagree indicates that, in your opinion, your school does not perform well in respect of that element. A response of strongly agree, in contrast, indicates that you believe your school performs very well in that element

1-Top Management Commitment		Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
1	The school's top management has adequate knowledge of TQM.					
2	The school's top management actively participates in TQM implementation.					
3	There is open communication between managers and staff.					
4	Top management creates a suitable environment in which the staff is strongly empowered and involved in TQM activities.					
5	Top management regularly discusses TQM issues in their meetings.					
6	Top management strives for long-term continuing improving.					
7	Top management has introduced new resources such as technology, new processes and systems, to improve the quality of management and education provided in the school.					
2- Involvement and Empowerment		Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
8	Staff members are actively involved in the decision-making process and TQM activities.					
9	External stakeholders are actively involved in the decision-making process and TQM activities.					
10	Feedback and suggestions are obtained regularly from the staff and other stakeholders.					
11	Managers and staff are empowered enough to take actions immediately and independently whenever they encounter a problem.					
3-Continuous Professional Development (CPD)		Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
12	The school constantly trains managers and staff in TQM.					
13	Financial resources are available for staff quality training in the school.					
14	Training is designed in keeping with the MOE's mission.					
15	Managers skilled in TQM transfer their expertise to the lower levels of the school.					
4- Recognition and Reward		Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
16	The school has a TQM reward system to recognise staff members' efforts in TQM activities.					
17	Financial incentives are used to reward quality improvements.					
18	Non-financial incentives are used to reward quality improvements.					
19	Recognition and reward activities stimulate staff members' commitment to TQM efforts effectively					

	.					
5- Student focus		Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
20	The school has a system to determine the students' key requirements, needs and expectations.					
21	The school uses a variety of methods to regularly aggregate feedback from students to determine their requirements.					
22	The school collects student complaints and evaluates them carefully.					
23	The school supports extra-curricular activities and clubs for students.					
6- Stakeholder focus		Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
24	The school collects staff members' complaints and evaluates them carefully.					
25	The school collects parents' and other stakeholders' complaints and evaluates them carefully.					
26	The school regularly surveys the needs and expectations of internal (staff members) and external (university industry, ex-students) stakeholders and uses them for school planning.					
27	The school regularly conducts surveys on job satisfaction among employees and teachers.					
7- Tools and Techniques for Measurement		Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
28	Different tools and techniques are used to measure development.					
29	Statistical tools are used to analyse data about the school to develop plans for improvement.					
30	Decisions in schools are based on the results from analysed data.					
31	Performance appraisals are used to identify training development needs.					
32	Feedback on performance appraisals is frequent, regular and effective.					
33	The school has a clear quality manual, quality system documents and working instructions.					
34	The school has a clear benchmarking system to learn lessons from best practice and uses other similar schools' experiences when planning for their school.					
35	The school has a system to review organisational performance and capabilities.					
36	The school translates the reviewed finding into priorities for innovation and improvement.					
	Are there any other factors which you believe contribute to successful TQM implementation? …….…….. …….					

Section 3 for the headteachers only:

What do you see as the most difficult obstacles to TQM implementation?
Please arrange the following ten factors from the most difficult to the least difficult factor according to the degree to which it mitigates the success of adopting a total quality management in your school {Give number (1) for the most difficult factor through to number (17) for the least difficult factor}.

Obstacles	NO
Weak attention to a quality culture	
Inadequate knowledge or understanding of TQM	
Lack of top management commitment and belief in the TQM programmes	
Weakness in commitment to quality strategy requirements	
Poor organisational communication	
Lack of material resources necessary for the application of comprehensive quality standards in the school.	
Lack of qualified human resources	
Weak commitment to employee involvement and empowerment	
Weakness in focusing on customer satisfaction and expectations	
Lack of training programmes	
Inefficient information systems used in the company	
Lack of use of quality measurement and benchmarking	
Absence of precise criteria for determining the level of performance required for the application of quality standards in the school.	
Lack of infrastructure suitable for the application of TQM	
Inappropriate Reward and Recognition	
Expecting immediate results	
Resistance of some staff in the school	
Other obstacles …… …… …….	

How might these be overcome?
……
……
…….

F.1 The Main Study's Questionnaire (Arabic)

السلام عليكم ورحمة الله وبركاته :

أنا باحثة في مرحلة الدكتوراة، اقوم بدراسة استطلاعية في مجال ادارة الجودة الشاملة. الهدف الأساسي من البحث هو تقييم تطبيق إدارة الجودة الشاملة في المدارس الثانوية للبنات في مدينة الرياض. وتتضمن هذه الدراسة توزيع استبيان للتعرف على آراء بعض المعلمات والمديرات لغرض البحث العلمي في هذه الدراسة فقط ، ولن يتم الإشارة إلى اسماء المشاركات في تعبئة هذا الإستبيان ولا لأسماء المدارس في الرسالة النهائية. وسأكون ممتنة لمشاركتكم وإسهامكم في نجاح هذا البحث الذي يعتمد على اجاباتكم.

يرجى الإجابة على كل سؤال، لا توجد إجابات صحيحة أو خاطئة، أسعى لمعرفة رأيك فقط. شاكرة ومقدرة تعاونك.

للتوضيح :

1- الاستبيان يهدف إلى قياس مدى تطبيق ادارة الجودة الشامله في المدرسه التي تعملين بها من وجهة نظرك الشخصيه

2- استخدمت الباحثه في الاستبيان (اصحاب المصلحه او المستفيدون) والمقصود بذلك

*** المستفيدون الداخليون:** كل من يستفيد من العمليه التعليميه بداخل المدرسه وهم الطلبه والمعلمون وكل من يعمل داخل المدرسة.

*** المستفيدون الخارجيون** : كل من يستفيد من العمليه التعليميه ولكن خارج المدرسه وهم أولياء الأمور والجامعات وسوق العمل والمجتمع.

1- بيانات العينة

1	الحي الذي تقع فيه المدرسة	شمال الرياض ◯ جنوب الرياض ◯		شرق الرياض ◯ غرب الرياض ◯
2	نظام التعليم في المدرسة	نظام مقررات ◯		نظام عام ◯
3	الوظيفه	معلمة ◯ ادارية ◯		مديرة ◯ وكيلة ◯
4	التخصص			
5	العمر	30 -20 ◯ 40- 31 ◯		50-41 ◯ 50 فما فوق ◯
6	المؤهل التعليمي	ثانوية عامة ◯ دبلوم ودكتوراة ◯		بكالوريوس ◯ ماجستير ◯
7	سنوات الخبره	5-1 سنوات ◯ 10-6 سنوات ◯ 15-11 سنة ◯		20-16 سنة ◯ 25-21 سنة ◯ اكثر من 26 سنة ◯
8	هل لديك دورات في ادارة الجودة الشاملة	نعم ◯ لا ◯	عدد الدورات	
9	نوع المبنى:	مستأجر ◯		حكومي ◯

	1- إلتزام الإدارة المدرسية نحو ادارة الجودة	أوافق بشده	أوافق	غير متأكد	لا أوافق	لاأوافق بشده
1	تمتلك ادارة المدرسه معرفة كافية بإدارة الجودة الشاملة.					
2	تساهم الإدارة بشكل فعال في تنفيذ إدارة الجودة الشاملة.					
3	توجد اتصالات مفتوحة بين المدراء والموظفين.					
4	تخلق الإدارة بيئة مناسبة تمكن الموظفين وتجعلهم يشاركوا بقوة في أنشطة إدارة الجودة الشاملة.					
5	تناقش الإدارة القضايا المتعلقة بإدارة الجودة الشاملة في الاجتماعات الدوريه.					
6	الإدارة تسعى لتحقيق اداء مستقر على المدى البعيد بدلا من الحلول المؤقتة على المدى القصير.					
7	تسعى الإدارة لتوفير جميع الموارد اللازمة (كإدخال التكنولوجيا والأنظمه المبتكره..الخ) لتحسين جودة التعليم والإدارة في المدرسة .					
	2 -المشاركة والتمكين	**أوافق بشده**	**أوافق**	**غير متأكد**	**لا أوافق**	**لاأوافق بشده**
8	جميع العاملون في المدرسة يشاركون في عملية اتخاذ القرار.					
9	يشارك المستفيدون الخارجيون (الاباء – الجامعات – سوق العمل.. الخ) في عملية اتخاذ القرار.					
10	المدرسة لديها نظام فعال للاقتراحات والاراء بحيث يدرس ويقيم آراء المستفيدين الخارجيين (الاباء – الجامعات – سوق العمل.. الخ) والمستفيدين الداخليين (جميع العاملين في المدرسه – الطلاب) بشكل مستمر.					
11	المدير وهيئة التدريس لديهم الصلاحية في اتخاذ اجراءات وحلول فورية ومستقله دون الرجوع لاي مرجع عندما تواجههم اي مشكلة في المدرسة.					

	3- التطوير المهني المستمر	أوافق بشده	أوافق	غير متأكد	لا أوافق	لاأوافق بشده
12	يتلقى المدراء والمعلمين التدريب في إدارة الجودة الشاملة بإستمرار.					
13	توفر الموارد الماليه المخصصه لجودة التدريب للموظفين في المدارس.					
14	التدريب مخطط له، وفقا لاستراتيجيه وخطه وزارة التربية والتعليم.					
15	ينقل المدير والوكلاء خبرتهم في إدارة الجودة الشاملة إلى باقي الموظفين في المدرسة.					
	4-المكافآت والتقدير	**أوافق بشده**	**أوافق**	**غير متأكد**	**لا أوافق**	**لاأوافق بشده**
16	المدرسة لديها نظام مكافأة لتقدير جهود الموظفين ومشاركتهم في أنشطة الجودة الشاملة.					

17	تستخدم الحوافز المالية لمكافأة الموظفين في مساهمتهم في تحسين وتطوير الجودة.					
18	تستخدم الحوافز غير المالية (شهادات شكر – اجازات..) لمكافأة الموظفين في مساهمتهم في تحسين وتطوير الجودة.					
19	التقدير والمكافأة تحفز الموظفين بشكل فعال على التزامهم بادارة الجودة الشاملة.					
5- التركيز على الطلاب		**أوافق بشده**	**أوافق**	**غير متأكد**	**لا أوافق**	**لاأوافق بشده**
20	توجد آلية واضحة في المدرسة تقيس من خلالها احتياجات الطلاب وتوقعاتهم.					
21	تستخدم المدرسة مجموعة متنوعة من الأساليب لجمع المعلومات والاراء بانتظام من الطلاب لتحديد احتياجاتهم.					
22	تجمع شكاوى الطلاب وتقيم بعنايه.					
23	تدعم المدرسة الأنشطة اللاصفية باستمرار للطلاب					
6- التركيز على المستفيدين الداخليين والخارجيين		**أوافق بشده**	**أوافق**	**غير متأكد**	**لا أوافق**	**لاأوافق بشده**
24	تقوم المدرسة بجمع شكاوى هيئة التدريس وتقيمها بعناية.					
25	تقوم المدرسة بجمع شكاوى أولياء الأمور وغيرهم من المستفيدين الخارجيين (الجامعات- سوق العمل..الخ) وتقيمها بعناية.					
26	تجري المدرسة بانتظام دراسه مسحيه لتحديد حاجات وتوقعات المستفيدين الداخليين في المدرسة والمستفيدين الخارجيين وتستخدمها في التخطيط المدرسي.					
27	تجري المدرسة بانتظام دراسة استقصائية حول الرضا الوظيفي للموظفين والمعلمين.					
7- الأدوات والتقنيات لقياس الأداء		**أوافق بشده**	**أوافق**	**غير متأكد**	**لا أوافق**	**لاأوافق بشده**
28	تستخدم المدرسة أدوات وتقنيات مختلفة لقياس اداءها					
29	تستخدم الادوات الإحصائية لتحليل البيانات وذلك لتطوير خطط التحسين					
30	تعتمد القرارات في المدرسه على النتائج المستخلصه من تحليل البيانات.					
31	يستخدم تقييم الأداء في المدرسة لتحديد احتياجات التدريب والتطوير للموظفين والمعلمين					
32	التغذية العكسية حول تقييم الأداء متكررة، منتظمة وفعاله.					
33	تمتلك المدرسة دليل جودة واضح ووثائق لنظام الجودة وتوجيهات العمل.					
34	تجري المدرسة بحث وتقصي لمعرفة أفضل الممارسات للجوده في المدارس الأخرى وتستفيد منها في وضع خطط المدرسة.					
35	المدرسة لديها نظام لمراجعة اداءها وقدراتها					
36	المدرسة تستفيد من مراجعه ادائها في تطوير وتحسن اداءها.					
هل يوجد أي عوامل أخرى تعتقد أنها تساهم في نجاح تطبيق إدارة الجودة الشاملة من وجهة نظرك؟		----------				

السؤال الثالث: يعبئ من قبل مدراء المدارس فقط:

1- ماهي اهم معوقات التطبيق في المدارس الحكوميه من وجهة نظركم ؟

يرجى ترتيب العومل التالية التي يمكن ان تعيق نجاح تطبيق الجودة الشاملة من وجهة نظرك في المدارس من الأكثر تاثيرا إلى الأقل اختر عشرة فقط بحيث {أعط الرقم (1) للعامل الأكثر ثاثير بينما العدد (17) للعامل الأقل تاثير }

معوقات تطبيق ادارة الجودة الشاملة في المدرسه	الرقم
ضعف ثقافة الجودة في المدرسة	
عدم المعرفة و الفهم الكافي لمفهوم ادارة الجودة الشاملة	
عدم التزام الإدارة في برامج إدارة الجودة الشاملة والاعتقاد بعدم اهميتها	
الافتقار الى جودة الخطط الأستراتيجية	
ضعف التواصل بين المدير والموظفين.	
نقص الموارد المادية اللازمة لتطبيق معايير الجودة الشاملة في المدرسة.	
نقص الموارد البشرية المؤهلة	
الافتقار في إشراك جميع الموظفين وتمكينهم	
ضعف التركيز على الطلاب و اصحاب المصلحة وتحديد توقعاتهم	
الإفتقار إلى البرامج التدريبية	
عدم كفاءة نظم المعلومات المستخدمة في المدرسة	
الإفتقار إلى قياس الجودة ومقارنه الاداء بالمدارس المطبقه لادارة الجوده الشامله والاستفادة من خبراتهم	
عدم وجود معايير دقيقة لتحديد مستوى الأداء لتطبيق معايير الجودة الشاملة في المدرسة	
عدم وجود البنية التحتية المناسبة لتطبيق إدارة الجودة الشاملة	
نظام لمكافأة والتقدير غير ملائم	
توقع المدير او الموظفين رؤية نتائج فورية من تطبيق ادارة الجودة الشاملة	
المقاومة والرفض من بعض الموظفين في المدرسة	
معوقات اخرى تود ذكرها	

2- برأيك كيف يمكن التغلب على هذه المعوقات ؟

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Appendix G Comparative Analysis of CSFs

Table Apx G-1: Comparative Analysis of CSFs

Framework components	Comparative Analysis of CSFs using Hietschold, Reinhardt and Gurtner (2014) study
Top management commitment	(2) Top management Top management support (Flynn, Schroeder and Sakakibara 1995), executive commitment (Powell 1995), leadership (Valmohammadi 2011) (8) Strategic quality policy (Demirbag et al. 2006), quality planning (Tari, Molina and Castejon 2007), vision & plan statement (Zhang, Waszink and Wijngaard 2000).
2- Engagement and Empowerment	1) HRM/recognition/Employee involvement/teamwork, employee empowerment (Ahire, Golhar and Waller 1996), recognition & reward (Zhang, Waszink and Wijngaard 2000), teamwork (Kumar, Garg and Garg 2011) 3) Process management, Tools and techniques (Valmohammadi 2011), continuous improvement (Claver, Tari and Molina 2003), process design (Zhang, Waszink and Wijngaard 2000) (7) Information/analysis/quality data and reporting (Demirbag et al. 2006), internal data quality information usage (Jayaram, Ahire and Dreyfus 2010)
3- Measurement and Reward	
Training	(6) Training and Learning (Claver, Tari and Molina 2003), knowledge learning (Adam et al. 1997), education & training (Das, Paul and Swierczek 2008)
Stakeholders' Focus	(4) Customer focus and Customer and market focus (Lau, Zhao and Xiao (2004)), satisfaction, customer satisfaction (Black and Porter 1995), customer relationship (Zu, Robbins and Fredendall 2010) (5) Supplier partnership Cooperation with suppliers (Claver, Tari and Molina 2003), supplier quality management (Ahire, Golhar and Waller 1996), supplier relationship (Flynn, Schroeder and Sakakibara 1995)
Funding and Resources*	(8) Strategic quality, quality policy (Demirbag et al. 2006), quality planning (Tari, planning Molina and Castejon 2007), vision & plan statement (Zhang, Waszink and Wijngaard 2000) 5) Supplier partnership. Cooperation with suppliers (Claver, Tari and Molina 2003), supplier quality management (Ahire, Golhar and Waller 1996), supplier relationship (Flynn, Schroeder and Sakakibara 1995)
Continuous Improvement	(3) Process management, Tools and techniques (Valmohammadi 2011), continuous improvement (Claver, Tari and Molina 2003), process design (Zhang, Waszink and Wijngaard 2000) (9) Culture and Trust (Jayaram, Ahire and Dreyfus 2010), cultural change communication (Antony et al. 2004)
Benchmarking	(10) Benchmarking competitors (Singh and Smith 2006), benchmarking (Powell 1995)
	Social and Wider community (Singh and Smith 2006), quality environmental citizenship (Rao, Solis and Raghunathan 1999) responsibility

Appendix H Influencing Variables

H.1 First Hypothesis

Table Apx H-1: One way analysis of variance for the differences in the responses of the sample depending on the job tittle

Factor	Source	Sum of Squares	df	Mean Square	F	Sig.
Top Management Commitment	Between Groups	10.61	2	5.31	7.28	0.001 (0.01)
	Within Groups	380.30	522	0.73		
Involvement and Empowerment	Between Groups	11.43	2	5.72	6.60	0.001 (0.01)
	Within Groups	452.16	522	0.87		
Continuous Professional Development (CPD)	Between Groups	2.11	2	1.06	1.17	0.312 (N. S.)
	Within Groups	473.00	522	0.91		
Recognition and Reward	Between Groups	8.00	2	4.00	4.79	0.009 (0.01)
	Within Groups	436.41	522	0.84		
Student Focus	Between Groups	12.54	2	6.27	7.27	0.001 (0.01)
	Within Groups	450.07	522	0.86		
Stakeholder Focus	Between Groups	22.12	2	11.06	12.23	0.000 (0.01)
	Within Groups	471.82	522	0.90		
Tools and Techniques for Measurement	Between Groups	12.42	2	6.21	7.69	0.001 (0.01)
	In Groups	421.44	522	0.81		
Total score	Between Groups	10.60	2	5.30	8.66	0.000 (0.01)
	Within Groups	319.66	522	0.61		

Table Apx H-2: Multiple range tests: Scheffe test for the differences in the responses of the sample according to job title

Factor	Position in the school	Mean	Teacher	Admin-Staff	Head-teacher	Difference in favour of the
Top Management Commitment	Teacher	3.51				
	Administrative staff	3.68				
	Headteacher	3.95	*			Headteacher
Involvement and Empowerment	Teacher	2.96				
	Administrative staff	3.12				
	Headteacher	3.41	*			Headteacher
Recognition and Reward	Teacher	3.24				
	Administrative staff	3.45				
	Headteacher	3.61	*			Headteacher
Student Focus	Teacher	3.38				
	Administrative staff	3.58				

Factor	Position in the school	Mean	Teacher	Admin-Staff	Head-teacher	Difference in favour of the
	Headteacher	3.85	*			Headteacher
Stakeholder Focus	Teacher	2.97				
	Administrative staff	3.27				
	Headteacher	3.59	*			Headteacher
Tools and Techniques for Measurement	Teacher	3.17				
	Administrative	3.36				
	Headteacher	3.64	*			Headteacher
Total score	Teacher	3.21				
	Administrative	3.40				
	Headteacher	3.64	*			Headteacher

(*) Indicates significant differences which are shown in the table.
(*) The mean difference is significant at the.050 level

H.2 Second Hypothesis

Table Apx H-3: One-way analysis of variance for the differences in the responses of the sample depending on the location

Factor	Source	Sum of Squares	df	Mean Square	F	Sig.
Top Management Commitment	Between Groups	4.03	4	1.01	1.35	0.249 (N. S.)
	Wthin Groups	386.88	520	0.74		
Involvement and Empowerment	Between Groups	3.25	4	0.81	0.92	0.453 (N. S.)
	Within Groups	460.34	520	0.89		
Continuous Professional Development (CPD)	Between Groups	4.85	4	1.21	1.34	0.254 (N. S.)
	Within Groups	470.26	520	0.90		
Recognition and Reward	Between Groups	4.33	4	1.08	1.28	0.277 (N. S.)
	Within Groups	440.08	520	0.85		
Student Focus	Between Groups	6.25	4	1.56	1.78	0.132 (N. S.)
	Within Groups	456.37	520	0.88		
Stakeholder Focus	Between Groups	5.79	4	1.45	1.54	0.189 (N. S.)
	Within Groups	488.15	520	0.94		
Tools and Techniques for Measurement	Between Groups	4.41	4	1.10	1.34	0.255 (N. S.)
	Within Groups	429.44	520	0.83		
Total score	Between Groups	4.04	4	1.01	1.61	0.171g (N. S.)
	Within Groups	326.23	520	0.63		

H.3 Third Hypothesis

Table Apx H-4: T-test for the differences in the responses of the sample according to study system of the school

Factor	Study system of the school	N	Mean	Std. Deviation	T-value	Sig.
Top Management Commitment	Course system	200	3.86	0.70	6.58	0.000 (0.01)
	Mainstream system	325	3.40	0.91		
Involvement and Empowerment	Course system	200	3.19	0.84	3.47	0.001 (0.01)
	Mainstream system	325	2.91	0.98		
Continuous Professional Development (CPD)	Course system	200	3.22	0.82	3.45	0.001 (0.01)
	Mainstream system	325	2.95	1.01		
Recognition and Reward	Course system	200	3.49	0.80	3.82	0.000 (0.01)
	Mainstream system	325	3.19	0.97		
Student Focus	Course system	200	3.64	0.81	3.87	0.000 (0.01)
	Mainstream system	325	3.33	1.00		
Stakeholder Focus	Course system	200	3.26	0.84	3.82	0.000 (0.01)
	Mainstream system	325	2.95	1.03		
Tools and Techniques for Measurement	Course system	200	3.49	0.80	5.18	0.000 (0.01)
	Mainstream system	325	3.09	0.94		
Total score	Course system	200	3.49	0.66	5.38	0.000 (0.01)
	Mainstream system	325	3.14	0.84		

H.4 Fourth Hypothesis

Table Apx H-5: One way analysis of variance for the differences in the responses of the sample depending on education level

Factor	Source	Sum of Squares	df	Mean Square	F	Sig.
Top Management Commitment	Between Groups	3.11	3	1.04	1.40	0.243 (N. S.)
	Within Groups	385.74	519	0.74		
Involvement and Empowerment	Between Groups	3.84	3	1.28	1.45	0.228 (N. S.)
	Within Groups	458.80	519	0.88		
Continuous Professional Development (CPD)	Between Groups	4.91	3	1.64	1.81	0.144 (N. S.)
	Within Groups	469.06	519	0.90		
Recognition and Reward	Between Groups	2.36	3	0.79	0.93	0.427 (N. S.)
	Within Groups	440.52	519	0.85		
Student Focus	Between Groups	1.51	3	0.50	0.57	0.637 (N. S.)
	Within Groups	460.52	519	0.89		

Stakeholder Focus	Between Groups	2.54	3	0.85	0.90	0.443 (N. S.)
	Within Groups	490.54	519	0.95		
Tools and Techniques for Measurement	Between Groups	1.65	3	0.55	0.66	0.576 (N. S.)
	Within Groups	431.57	519	0.83		
Total score	Between Groups	2.21	3	0.74	1.17	0.321 (N. S.)
	Within Groups	327.23	519	0.63		

H.5 Fifth Hypothesis

Table Apx H-6: One way analysis of variance for differences in the responses of the sample according to years of experience

Factor	Source	Sum of Squares	df	Mean Square	F	Sig.
Top Management Commitment	Between Groups	5.46	5	1.09	1.46	0.201 (N. S.)
	Within Groups	384.66	515	0.75		
Involvement and Empowerment	Between Groups	10.20	5	2.04	2.34	0.041 (0.05)
	Within Groups	448.81	515	0.87		
Continuous Professional Development (CPD)	Between Groups	14.48	5	2.90	3.25	0.007 (0.01)
	Within Groups	458.58	515	0.89		
Recognition and Reward	Between Groups	4.73	5	0.95	1.12	0.351 (N. S.)
	Within Groups	436.70	515	0.85		
Student Focus	Between Groups	8.89	5	1.78	2.03	0.073 (N. S.)
	Within Groups	450.99	515	0.88		
Stakeholder Focus	Between Groups	12.89	5	2.58	2.77	0.018 (0.05)
	Within Groups	480.14	515	0.93		
Tools and Techniques for Measurement	Between Groups	15.62	5	3.12	3.85	0.002 (0.01)
	Within Groups	417.65	515	0.81		
Total score	Between Groups	8.93	5	1.79	2.87	0.014 (0.01)
	Within Groups	320.24	515	0.62		

Table Apx H-7: Multiple range tests: LSD test for the differences in the responses of the sample according to years of experience

Factor	Years of experience	Mean	1–5 years	6–10 years	11–15 years	16–20 years	21–25 years	More than 26 years	Differences in favour of:
Involvement and Empowerment	1–5 years	3.23			*		*		1–5 years
	6–10 years	3.22			*		*		6–10 years
	11–15 years	2.90							
	16–20 years	2.97							

Factor	Years of experience	Mean	1–5 years	6–10 years	11–15 years	16–20 years	21–25 years	More than 26 years	Differences in favour of:
	21–25 years	2.86							
	More than 26	3.20							
Continuous Professional Development (CPD)	1–5 years	3.24				*	*		1–5 years
	6–10 years	3.30				*	*		6–10 years
	11–15 years	3.16				*	*		11–15 years
	16–20 years	2.93							
	21–25 years	2.81							
	More than 26	3.12							
Stakeholder Focus	1–5 years	3.32			*	*	*		1–5 years
	6–10 years	3.35			*	*	*		6–10 years
	11–15 years	2.99							
	16–20 years	2.98							
	21–25 years	2.91							
	More than 26	3.21							
Tools and Techniques for Measurement	1–5 years	3.50				*	*		1–5 years
	6–10 years	3.49				*	*		6–10 years
	11–15 years	3.32				*	*		11–15 years
	16–20 years	3.10							
	21–25 years	3.03							
	More than 26	3.32							
Total score	1–5 years	3.46				*	*		1–5 years
	6–10 years	3.49				*	*		6–10 years
	11–15 years	3.26							
	16–20 years	3.18							
	21–25 years	3.11							
	More than 26	3.37							

(*) Indicates significant differences which are shown in the table.
(*) The mean difference is significant at the.050 level.

H.6 Sixth Hypothesis

Table Apx H-8: T-test for the differences in the responses of the sample according to the status of the school building

Factor	Status of school building	N	Mean	Std. Deviation	T-value	Sig.
Top Management Commitment	Rented building	50	3.39	1.01	1.39	0.171 (N. S.)
	Government building	475	3.59	0.85		
Involvement and Empowerment	Rented building	50	2.94	1.04	0.68	0.500 (N. S.)
	Government building	475	3.03	0.93		
Continuous Professional Development (CPD)	Rented building	50	2.87	1.09	1.46	0.146 (N. S.)
	Government building	475	3.07	0.94		
Recognition and Reward	Rented building	50	3.19	1.01	0.93	0.352 (N. S.)
	Government building	475	3.31	0.91		
Student focus	Rented building	50	3.21	1.02	1.89	0.059 (N. S.)
	Government building	475	3.47	0.93		
Stakeholder focus	Rented building	50	2.93	0.96	1.07	0.287 (N. S.)
	Government building	475	3.08	0.97		
Tools and Techniques for Measurement	Rented building	50	3.12	0.96	1.04	0.300 (N. S.)
	Government building	475	3.26	0.90		
Total score	Rented building	50	3.12	0.90	1.43	0.152 (N. S.)
	Government building	475	3.29	0.78		

Appendix I The Indicative Maturity Framework Checklist and Guideline

Table Apx I-1: The Indicative Maturity Framework Checklist and Guideline

	Level	**Indicative Level of Performance** (Pattern of Behaviour)	**Principle** **What do I need to do** **What you intend to achieve**	**Process** **How Shall I do it** **Designing how you achieve your intention**	**Practice** **What do I do** **Doing what you planned**	**Expected Output (Evidence)** **The result of what you did/achieving your intention**
1	Awareness	Ad hoc, Individual, Once Off, Basic	Verbal communication of concepts and benefits of TQM by Top Management supported by media campaign. No general recognition or awareness of need for change. Some examples of understanding may exist at management but generally only at an individual level.	TQM Processes do not yet exist, Some Initiatives may exist but are basic, ad hoc and uncoordinated. A timetable of meetings to promote TQM A plan of communication to share TQM information	Meetings to inform, explain and discuss new vision held at regular intervals to communicate with all stakeholders. Visual Media campaigns visible promoting TQM Concepts and Vision for all to see. No TQM practices, ad hoc or one off initiatives by individuals or one off examples to trial understanding or basic application. No TQM related metrics in place..	Examples of personal and media communication of TQM, some individual examples of action taking place, reminders, notices ,posters, campaigns, meeting notes, references, new books or TQM related material.
2	Developing (Encouragement)	Case by Case, Trialling, Occasional	Management engaging stakeholders with ideas relating TQM concepts into the workplace. Discussion of the ideas and communication of the benefits by senior management in meetings using external references and documentation. But principles still informal.	Early stage project plans with scheduled milestones and meetings to involve all stakeholders input discuss and encourage participation in idea generation and trialling ideas at unit level. At a unit level informal plans exist to analyse and re-design their processes. Project feedback still informal to feedback on communicated and documented. New project reporting metrics, tools and techniques are introduced for project performance tracking of goals and objectives. Goals and objectives planning and input sessions are planned and processes designed. Procedures being written to describe the use of new TQM related approach and criteria for tracking progress and decision making.	Meetings held involve all stakeholders input in setting standards and designing new outputs and outcomes. New guidelines for processes and practices to reflect stakeholder input with first draft templates and samples of outputs, examples, documents or reports. Trialling implementation of new redesigned processes at unit level, informal analysis with basic metrics and issues raised for attention, Managers involved in encouraging and guiding. Suggestions requested and inputs being used from all stakeholder input and reviews. .	Staff have a basic level of understanding Project Plans published and visible to all, New Initiatives announced, Set Meetings and milestones published. Training , emergence of new tools and use of tools or processes
3	Committed	Defined & Documented; Prototypes, Repeatable	Communication now formal and documented in plans with assumptions and project and timelines. TQM language and approach are standardised at all functional levels. Management very involved and supportive, engaging staff in objectives setting which is both top down and bottom up. Project plans and training funded. All staff involved in planning and implementation. Repeatable behaviours being observed with only some variations in approach.	At organisational and functional or departmental level the new TQM policies, processes and tools are defined and documented with instructions. Training for bottom up process redesigning and goal development is being set in place at unit level. Manager regularly conducts walkthroughs to encourage and support problem solving and on the job training. Suggestion Box processes in place. Modelling of all redesigned process areas are documented with template prototypes and guidelines showing when and how to use the tools and processes for guidance and training. The Levels of standardisation become shared cross functionally and in the organisation. Financial planning regularly reviewed. Set planning and review cycles for Performance Appraisals. Review of recognition and reward processes. Processes in place for stakeholder reviews and surveys. Performance standards thresholds developed. Lessons learned and after action review processes are developed. Problem resolution and incident recording processes exist to address variations, performance, issues and obstacles.	Intermediate certified internal and external training completed for all staff (skills and competencies) to understand new terminology, use the new techniques and tools, develop new skills and practice problem solving. New organisational structure with accountabilities and responsibilities assigned with updated job descriptions related to competencies and capabilities. Managers' open door policy is established to support staff and other stakeholders in implementing the related activities. Problem resolution processes documented and implemented. Managers conduct regular walkthroughs in the workplace. Feedback from regular surveys is analysed and published. Quality circles used to address issues and problems. Competency based performance measurement system introduced with the new criteria and new basic metrics are in place to measure performance. New recognition and rewards system introduced to complement the performance system; includes financial and non financial incentives.	Performance Reviews, Meeting minutes, Surveys, Training attendance, Manager walkthroughs, Suggestion Box. Documentation (procedure) changes, (Re) Modelling of new activity, new measures/metrics. Likely to introduce new methodologies for standardisation.

				Peer to Peer review processes are operational with quality circles and processes to document and update shared best practice repositories to store case studies of improvements as new processes and tools are used.		
4	Operating	Standardised, Measured and Controlled, Predictable Action, Benchmarked, Case Studies	Organisational structure changes evidence new authority and responsibility levels. Information system for efficiency and effectiveness analysis are accessible and updated by all staff. Resources and funding allocated in financial plans with objectives cascaded throughout. Consistency of understanding of TQM, efficiency and effectiveness measures. Management now supportive but delegates all operational activities and decisions and focuses on strategy and performance reviews. Behaviours are consistent and predictable. All staff can explain why they are doing what they are doing in TQM terms. Accountability and responsibility are clearly understood at all levels.	All organisational Processes are standardised, documented and predictable. Processes are integrated at organisational level. There is ongoing regular documentation and Sharing of best practices.. Internal and external benchmarking processes are established and there is consistent compliance across the organisation. Top Down and Bottom Up Planning and Performance review and reporting processes are fully operational and established. Input from reviews, meetings and benchmarking is used. Statistical and management reporting processes are operational and established in the monthly calendar. Decision making processes are operational at all levels based on regular statistical and management reporting to correct below threshold performance	Operating at organisational level. Managers involved in strategic planning only and performance reviews. Documented processes are consistently practised as routine across the organisation. Specific additional advanced training is conducted, based on performance reviews and input from quality circles. Managers and staff are involved in coaching and mentoring. Consistent and repeatable performances by the students and staff with targets and metrics tracked and analysis of efficiency and effectiveness of the related activity being made. Metrics are now in place to measure efficiency and effectiveness and quality based internal audit reviews/walkthroughs to review quality standards Reporting at summary and detailed levels conducted by staff with feedback to management (bottom up).Decisions made at all levels based on metrics Sharing best practices leads to new improvements. Added metrics constantly being introduced to improve performance	Joined up Objectives linked to Annual Plans, Reports, Surveys, Plans, Reviews of Initiatives, Resourcing, organisational structure changes, revised allocation of responsibility and visible organisational trends being tracked. Recognition awards for quality services and contributions. Planning and Performance cycles well understood and all involved. Staff qualification certifications for new standards.
5	**Embedded/ Pervasive**	Continuous Improvement, Institutionalised, Routine and Experimentation - Closed Loop Improvements)	Management now supportive but predominantly focused on strategic initiatives and an embedded open door policy. Most operational aspects are delegated with the decision making capacity.. Information system used to provide regular trends intelligence showing qualitative and quantitative metrics for efficiency and effectiveness analysis accessible and visible by all staff Recognition awards for quality services and contributions.	Processes are mandatory and institutionalised throughout the organisation, there is evidence of regular version updates of processes, templates and new designs automatic.. Competency and capability standards and frameworks direct recruitment and performance reviews Consistent training in the organisation to embed new and ongoing improvements in TQM, quality efficiency and effectiveness measures Regular meetings to discuss innovation and improvements. Resources and funding allocated in financial plans with objectives cascaded throughout. Planning and Performance cycles processes well established and all involved.	Patterns of Practices are now fully embedded, routine and mandatory. Evidence of continuous improvement in operational excellence with new innovations. Quality behaviours are pervasive throughout the organisation, performance trends are tracked and new stretch targets are regularly achieved. Evidence of Recognition of quality through external awards, e.g. King Abdulaziz Awards. Constant adaptation of processes and mechanisms adopted to improve quality. Management focuses on exception analysis used to drive qualitative improvement.	Embedded routines for periodic Reports, performance Reviews, Plans, Meetings showing changes. Innovations regularly announced and ongoing recognition for continuous improvement. Efficiency and Effectiveness and TQM terminology embedded in daily communications.